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British Archaeology

THE VOICE OF ARCHAEOLOGY FOR 80 YEARS

ISSUE 202

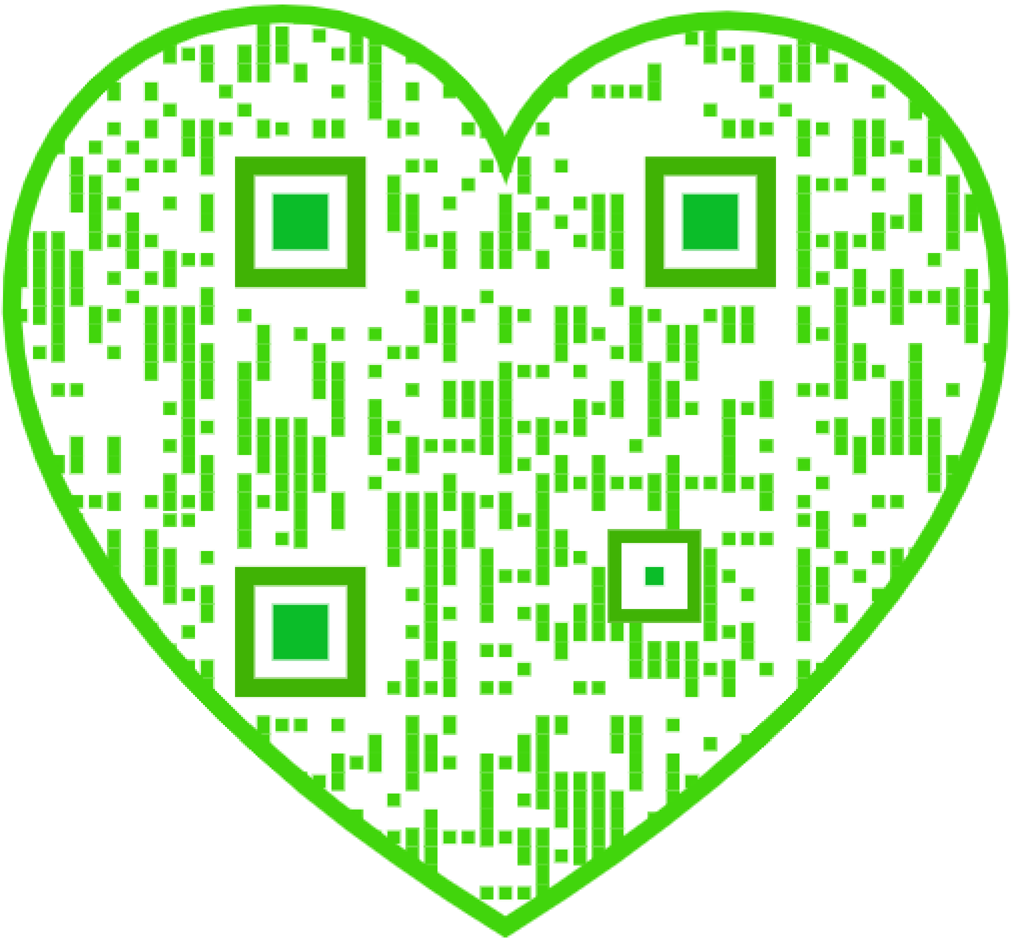
The future of Flag Fen

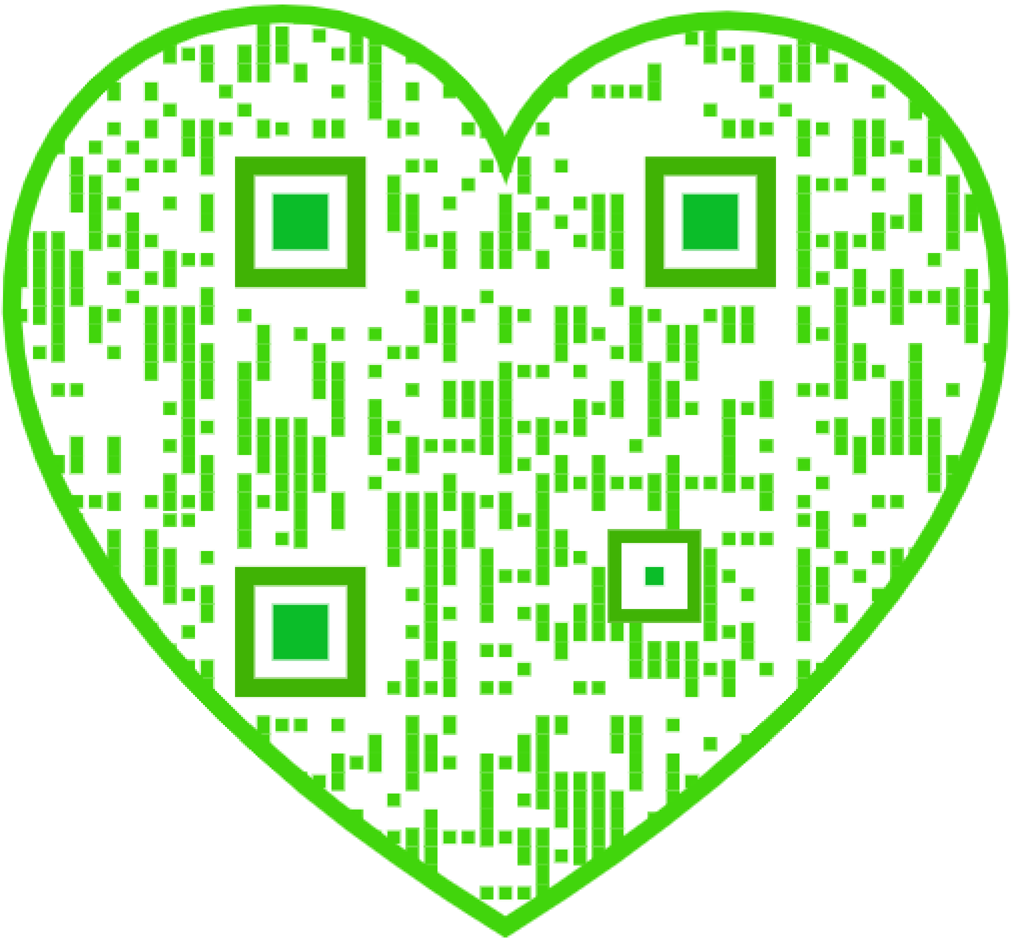
Being human: Neanderthal encounters at Shanidar Cave

Unlocking the military myths of pillboxes

The curious case of Romano-British baby bottles

80 YEARS | Council for British Archaeology





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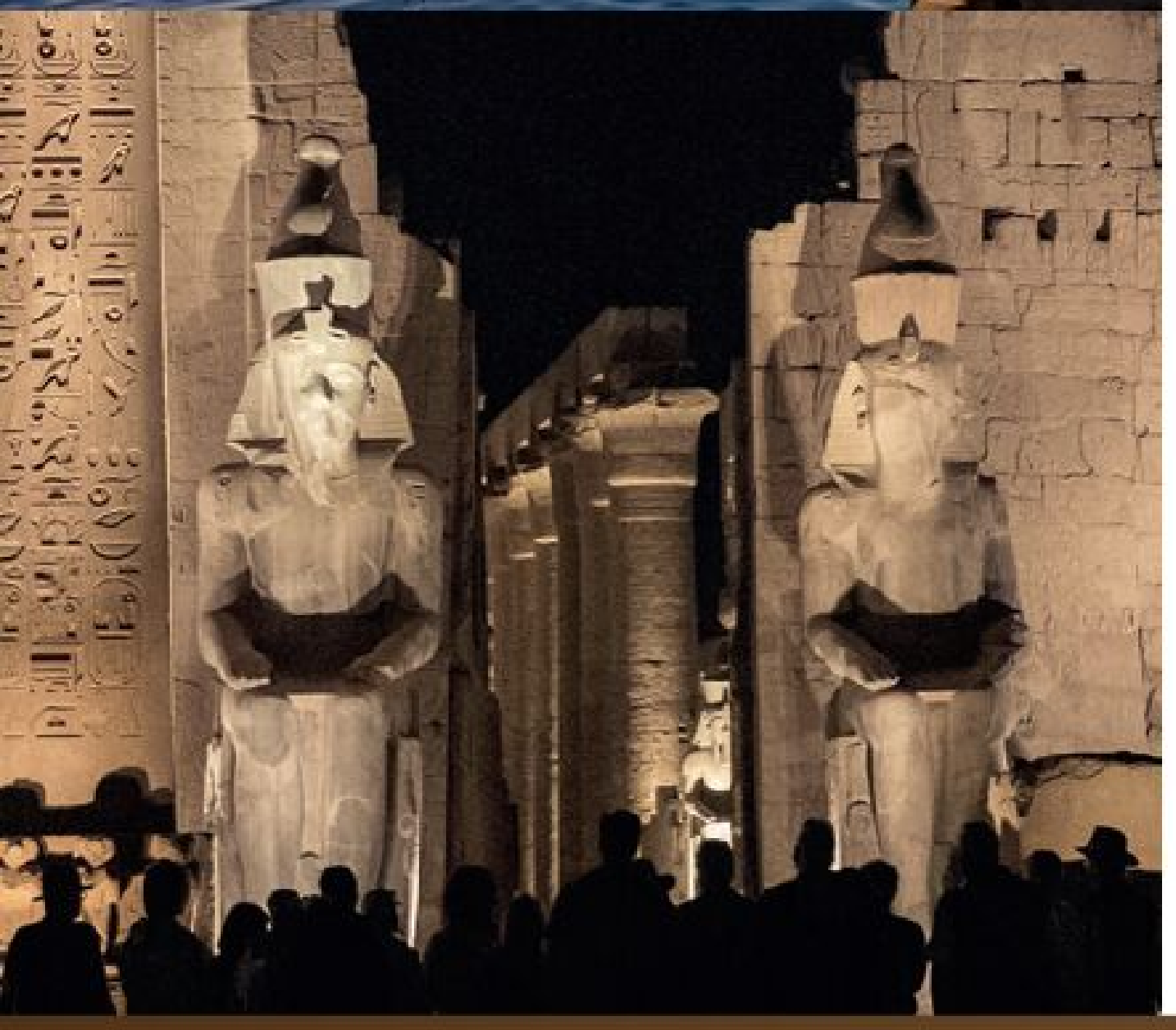

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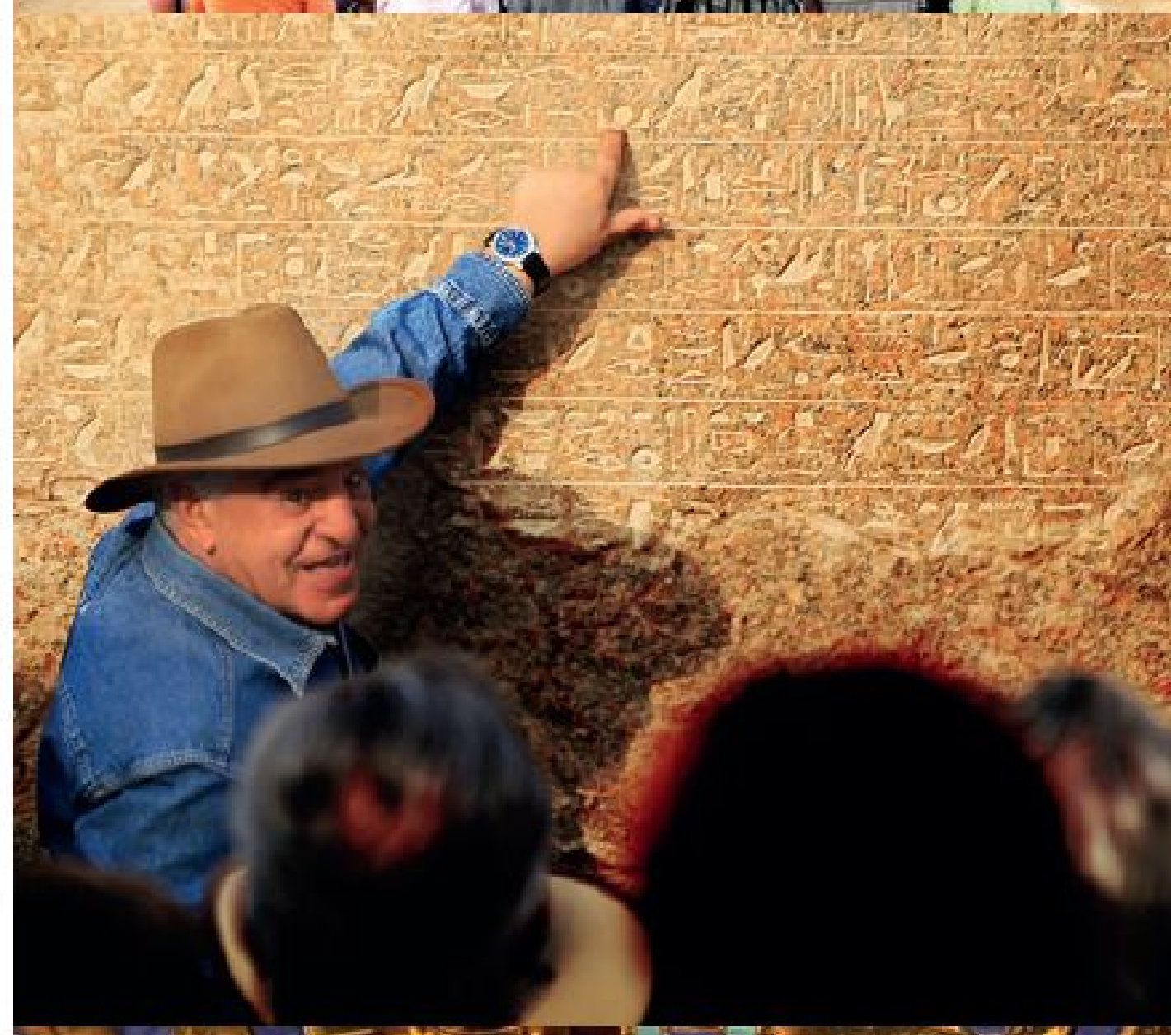

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Council for
British Archaeology

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Founded in 1944, the Council for British Archaeology promotes archaeology for all. It makes the case for safeguarding our archaeological heritage, and increasing public participation and understanding. It has a growing membership of individuals of all ages and over 600 organisations, and partnerships with Archaeology Scotland, CBA Wales/Cymru and CBA English Regional Groups. The CBA is an environmental charity registered in England & Wales (287815) and Scotland (sc041971), and a company limited by guarantee (1760254)

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From the editor

VOLTAGE TV

I first met Francis Pryor and Maisie Taylor on a *Time Team* shoot. They're part of my archaeological family, people who you have the fortune to meet that leave an indelible mark on your life and a capacity to open your mind to wider possibilities. I've always admired them; Francis is an over-the-top ebullient storyteller and Maisie is a stoic, doer of archaeology, the most incredible wood specialist and all-round female trailblazer. Both are passionate about archaeology, generous and unwavering in their support for others which has undoubtedly paved the way for a generation of archaeologists.

After the discovery of Flag Fen, Maisie and Francis set to work excavating and interpreting the site. In the coming years, they eventually set up a field school, a mecca for archaeologists and students in the 90s, where hundreds travelled to the eastern edge of Peterborough, the gateway to the fens. Excavators were taught how to delicately peel off slippery peaty deposits – a specialised skill, each carefully sifting their way through woody waterlogged trenches.

Here they single-handedly wowed the nation, giving us a rare glimpse into a hidden Bronze Age world of drowned landscapes, forgotten gnarled walkways and ancient bronze weapons retrieved from submerged palaeo-channels. Not too dissimilar to most UK archaeological heritage sites, Francis and Maisie looked to the future, building infrastructure, creating an archaeological park, and ensuring that everyone could access and benefit from the discoveries they made.

Almost 40 years on *The Fall and Rise of Flag Fen* looks at this remarkable archaeological legacy. Recent excavations and analysis of the site have revealed the devastating knowledge that this internationally important Bronze Age site is now at risk from climate change and human impact. We hear from the Flag Fen Futures group; a consortium of heritage and industry specialists, how decisive action can be used as a blueprint for similar UK sites under threat.

Archaeological legacies like Flag Fen run through the veins of *British Archaeology*, evident in its current practice and research. Almost a 100 years ago, Dorothy Garrod's archaeological journey began, intrigued by how we came to be, she travelled to the middle east to uncover evidence of our early ancestors. *Being Human: Neanderthal Encounters at Shanidar Cave* highlights how cutting-edge British research in the Iraqi Kurdistan region (pioneered by Dorothy herself) has revolutionised the way we think about our evolutionary cousins in life and death.

For decades concrete remnants of WWII pillboxes dotted around cities, towns, and the surrounding countryside have captured the imagination of military enthusiasts, and summoned nostalgic 'Dad's Army' connotations associated with them. Often misinterpreted, *Pillboxes: Unlocking the military myths of Britain's field defenses* reveals how current historical and archaeological techniques can offer a fresh approach to understand how strategically effective this type of fortification was during the 1940s.

Our collective heritage inheritance are our archive collections, depositories of stuff and vast banks of knowledge held in museums and local authorities charting human endeavour and creativity. In recent years grant funded research has enabled individuals and organisations to interrogate what we think we know, or don't. Our final feature; *The curious case of Romano British baby bottles* charts the start of a forensic search through the back-catalogue of Roman-British tettine vessels, and their uses during early childhood.

As always if you have any thoughts or comments, we loved to hear from you email: editor@archaeologyuk.org

On the cover: Flag Fen post alignment

Credit: Fenland Archaeological Trust

Radiocarbon dates

Unless otherwise noted, ^{14}C dates in *British Archaeology* are calibrated at 95% confidence (cal AD or cal BC, expressed as AD or BC), rounded out after Mook (1986). See Radio-carbon dating by M Christie *et al*, *WikiJournal of Science* (2018), DOI: 10.15347/wjs/2018.006

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This issue's contributors include

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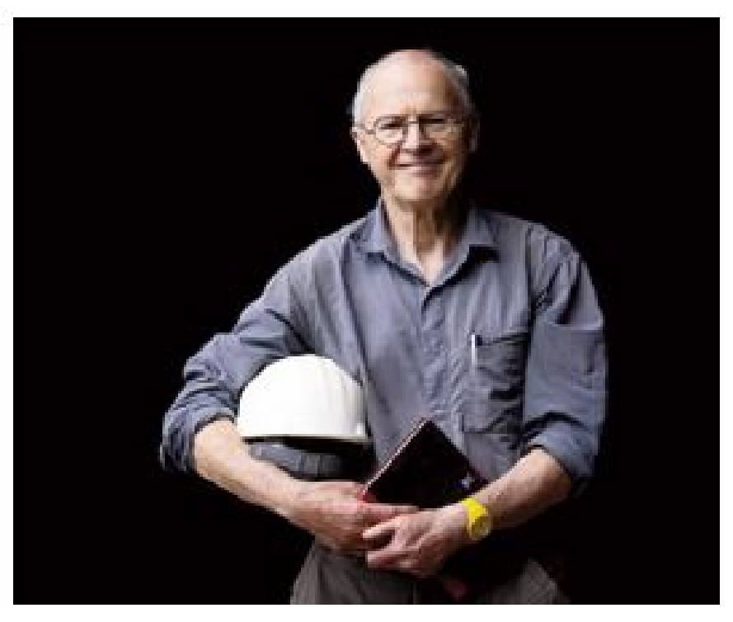
THE NEW REGION

Professor Graeme Barker is Disney Professor of Archaeology Emeritus at the University of Cambridge. The Shanidar Cave Project is the latest interdisciplinary field project he has led investigating long-term inter-relationships between climate, environment and people

MOLA

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FIRST SIGHT

Two faces of Shandizar Z.

See pp 28-35 to find out more

FIRST SIGHT IMAGE: BBC STUDIOS

from the director

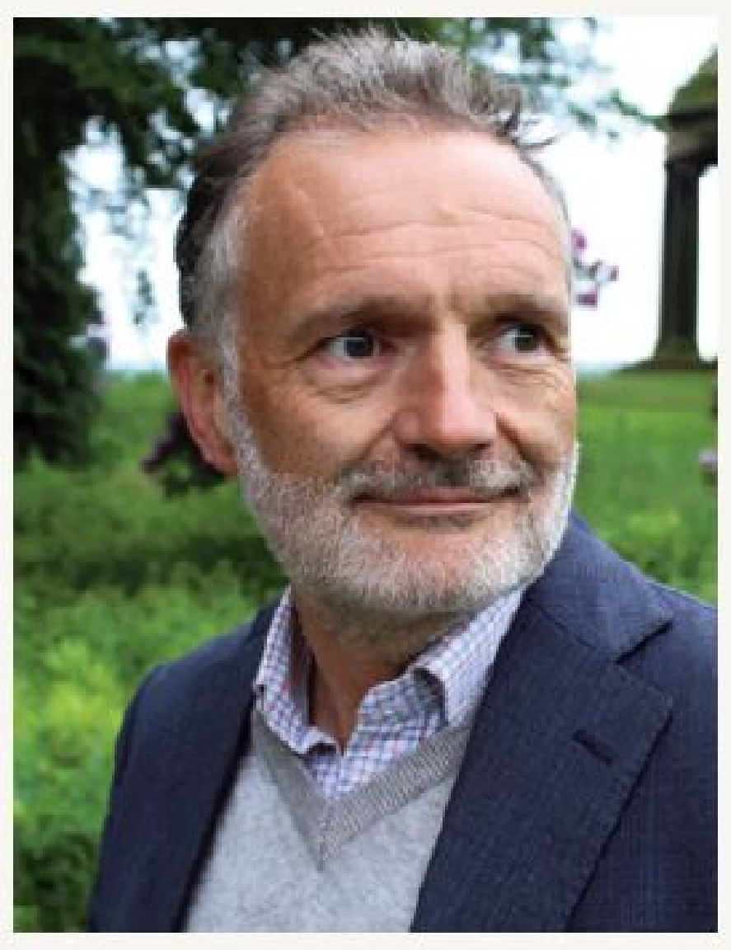
Shaping the future of planning

With spring in the air, it seems that we are about to enter a season of consultations and surveys. I will talk more about how you can have a say about our own work below, but first we are starting to get a real sense of what the government's thinking is in terms of planning and development.

It is clear that there is now a determination in government to make sweeping changes and heritage has already fallen within their sights in a hastily announced consultation on the role of statutory consultees in the planning process.

CRAFTSMEN IN WOOD
BARGHEST
SHAMBLES SWEET SHOP
VIA VECCHIA
Artisan Bread

CBA [2]



Top: There is now a determination in government to make sweeping changes and heritage has already fallen within their sights

Statutory consultees

On 10 March, the Sky News website declared that: "The government has declared a war on NIMBYs in a bid to increase the numbers [of buildings] being built. Its latest idea is to reduce the number of bodies who have to be consulted as part of building proposals."

Specifically included in this announcement were The Gardens Trust, one of our fellow National Amenity Societies. The government stated its intention to bring forward a consultation on limiting the scope of statutory consultees and removing a limited number of them, including Sport England, Theatres Trust, and The Gardens Trust, in planning decisions.

Historic England, as one of the big five statutory consultees (Natural England, National Highways, Environment Agency, Health and Safety Executive) will also be included in this consultation. Angela Rayner, the deputy prime minister and housing secretary, reiterated the government's plans, saying: "We've put growth at the heart of our plans as a government, with our Plan for Change milestone to secure 1.5 million homes and unleash Britain's potential to build.

We need to reform the system to ensure it is sensible and balanced, and does not create unintended delays – putting a hold on people's lives and harming our efforts to build the homes people desperately need."

While consultees will not be completely excised from the planning process under the changes, their scope will be 'narrowed to focus on heritage, safety and environmental protection'. The Gardens Trust, responding to the announcement, pointed out that it doesn't recognise the government's characterisation of statutory consultees. They rarely miss the 21-day response deadline, work closely with local volunteers in forming responses, and last year objected to less than 10% of consultations, with the remainder of their responses being supportive advice.

As a National Amenity Society, they make use of the Joint Committee for National Amenity Society's (JCNAS) Planning Casework Database and we have been supporting them to demonstrate their proactive input to the planning process.

Currently, we and the other members of the JCNAS (SPAB, The Georgian Group, The Victorian Society, Historic Building and Places, and The Twentieth Century Society) are not included in the consultation as we are not statutory consultees on planning applications. Our casework role stems from the requirement of planning authorities needing to notify us about listed building consent applications.

We are mindful of our need to support The Gardens Trust and the other statutory bodies in responding to this consultation and you will also be able to lend your support by responding. We will publish more details when they are made public.

Planning and Infrastructure Bill

In March, the government published its *Planning and Infrastructure Bill* which aims to further speed up and streamline the planning system and decisions on major economic infrastructure projects by the end of this parliament (there is a common message here). It will do so by introducing a strategic planning system for England.

This aims to establish a more efficient and predictable system for energy infrastructure projects, reforms to the compulsory purchase order (CPO) process, improve certainty and decision-making in the planning system, including introducing a new delegation scheme to modernise local planning committees, establish mandatory training for planning committee councillors, and enable the cost recovery of planning fees.

It will also introduce a more strategic approach to nature recovery in relation to development. This will enable developers to fund restoration more efficiently through a new Nature Restoration Fund while securing improved outcomes for the environment.

Left: The Planning and Infrastructure Bill aims to further speed up and streamline the planning system

CBA [2]

Left: The Planning and Infrastructure Bill will introduce a more strategic approach to nature recovery in relation to developments

Land Use Framework

In January, the government started a national conversation about the future of land use in England. Stating that: "Our land is our greatest natural asset – the source of food, the bedrock of nature, the support system of the environment on which we all rely. It is the place we live, work and rest.

"The people who work on and look after the land, and make decisions about how land should be used, have been pivotal in this country's history and are central to its future. Because these decisions are not marginal, the use of our land underpins everything in our economy and our society."

It hopes the national conversation about land use will allow ministers to better understand and minimise trade-offs, and optimise the use of our land. The Council for British Archaeology will be actively responding to all these consultations and stressing the contribution archaeology can make to creating better places to meet the needs of society today. Indeed, these consultations offer archaeology an opportunity to present a more dynamic approach to its role in planning and land management. An approach that is less about mitigation and more about place shaping and creativity.

Our landscapes and urban areas hold a wealth of stories that we, as archaeologists, are in a unique position to help unlock. We do need the right policy framework and the opportunity to enter into meaningful dialogue about places and our landscape. This is why these consultations are so important and why the rhetoric around consultees being blockages to development is so unhelpful.

Have your say about the work of the CBA

As part of our resilience project funded by the Heritage Fund, Reconnecting Archaeology, we are undertaking two surveys looking at *British Archaeology* magazine and our membership offer.

British Archaeology magazine survey

We want to understand what our readership wants to see in *British Archaeology* so that we can make it better. Your answers will help us to ensure that the magazine is providing content about archaeology that is most appealing to its current audience while helping us to understand how it can be made more appealing to new audiences.

We know how important the magazine is and why it is valued for bringing you the latest news and information on archaeological excavations and research in the UK. We hope the survey will help us strengthen and take the magazine forward.

You can fill out the paper version of the magazine survey – included in this edition of *British Archaeology* – and use the prepaid envelope to return it to us, or you can use the QR code below to complete the online version.

The magazine survey will be open until 27 June 2025.

Reimagining CBA membership

To help us understand what our members and audiences think of our work, we are working with audience specialists Morris Hargreaves McIntire (MHM) to undertake a membership survey that will help us develop and strengthen our offer.

We are keen to gather insights about us, our work, and what we do. We would like to understand what benefits you think membership of the CBA brings and what you might like us to offer in the future.

The survey will ask you to consider the challenges we face to remain relevant, what your understanding of archaeology is, and how you engage with us and with archaeology. We are also interested in your motivations around archaeology and being part of the CBA.

This survey will be online, and you can access it via the QR Code below. The survey will be open until 27 April 2025. Thank you for sharing your thoughts and helping us shape the future of *British Archaeology* magazine and CBA membership.

Obituary: John C Barrett

John C Barrett, Emeritus Professor of Archaeology at the University of Sheffield, and one of the leading theoretical archaeologists of his generation, has sadly passed away at the age of 75.

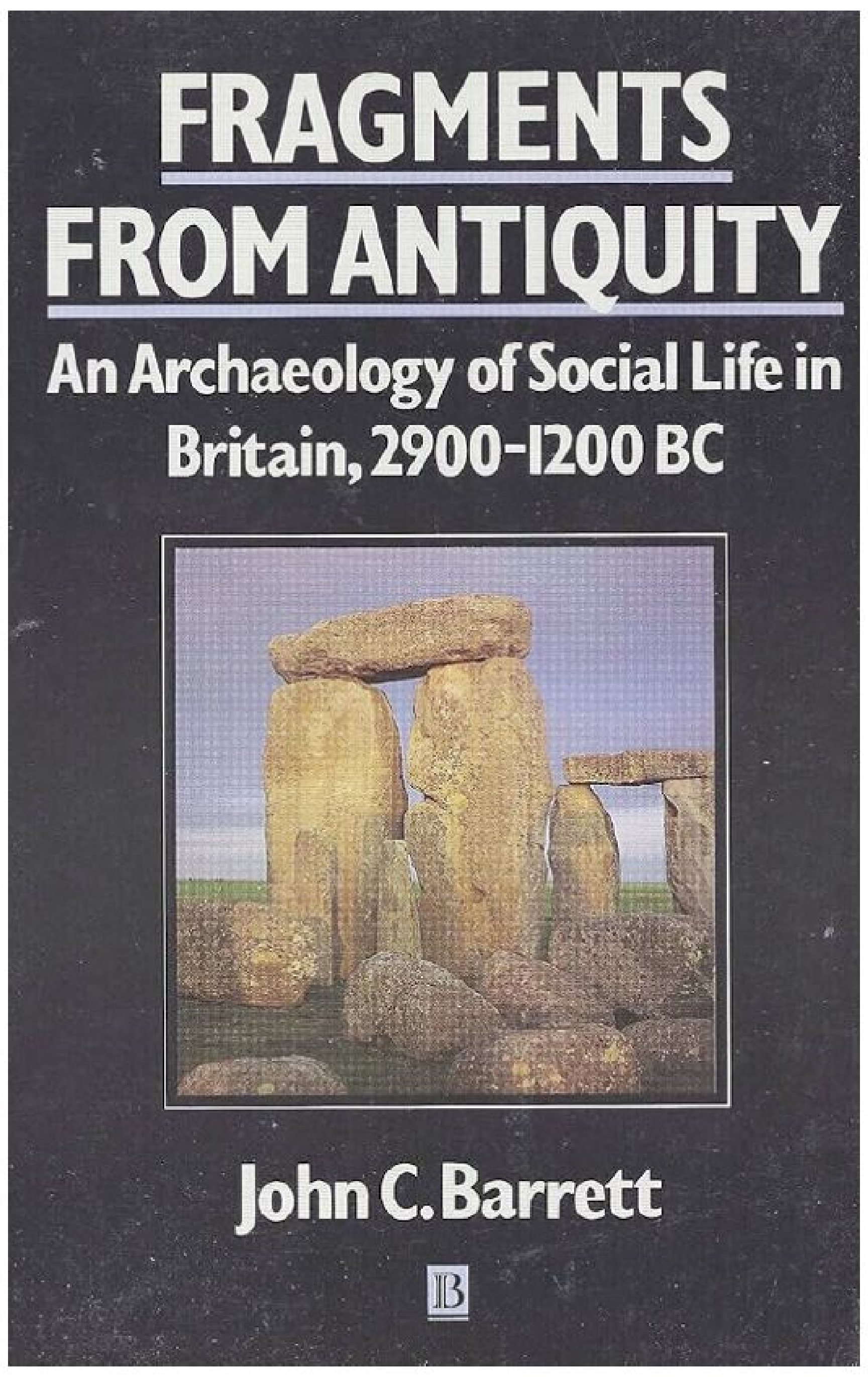
Known for his influential contributions to archaeological thought and European prehistory, his work challenged traditional narratives and helped reshape how archaeologists approached human experience in the past.

Born in 1949, Barrett studied archaeology at the University of Wales, University College Cardiff, before embarking on an academic career that would see him become a key figure in archaeological theory. He began teaching at the University of Leeds in 1976, later moving to the University of Glasgow, where he became a senior lecturer.

In 1995, he then joined the University of Sheffield, where he was appointed Professor of Archaeology in 2001. While at Sheffield, he served in several leadership roles, including Head of Archaeology (2002-2006) and Dean of Arts (2007-2008).

Barrett's work was central to the development of archaeological theory, particularly in regard to the study of European prehistory. His research focused on the lived experience of past societies emphasising the importance of understanding individual experiences in the past, rather than focusing solely on broad societal processes.

Above: John C Barrett



FRAGMENTS FROM ANTIQUITY

An Archaeology of Social Life in Britain, 2900-1200 BC

John C. Barrett

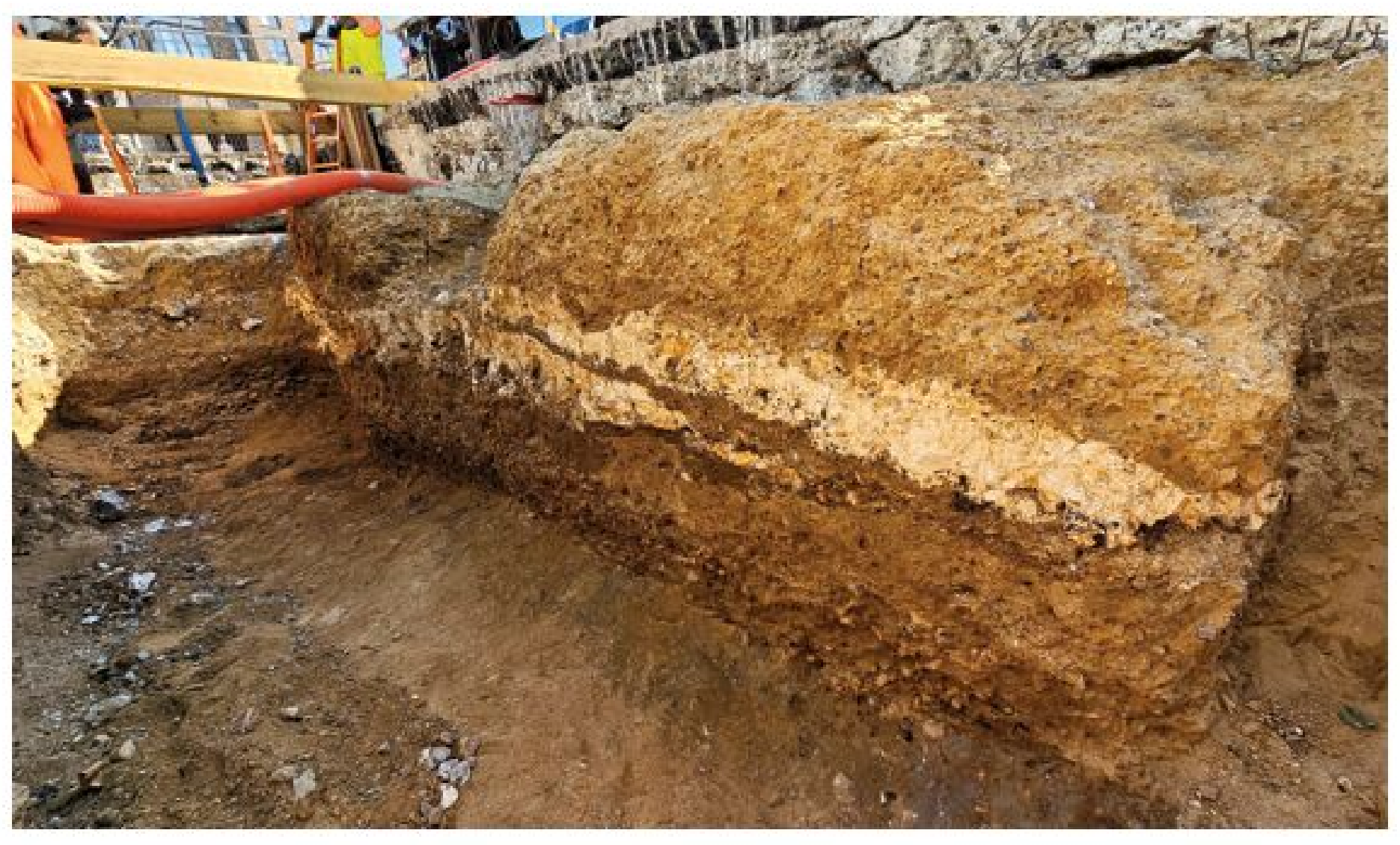
One of his most notable books, *Fragments from Antiquity: An Archaeology of Social Life in Britain, 2900-1200 BC* (1994), remains an influential text to this day, reshaping interpretations of Bronze Age Britain.

Outside of academia, John Barrett was deeply engaged with the broader archaeological community, contributing to debates around commercial archaeology and heritage management.

His work influenced not only academics but also practitioners navigating the complexities of archaeology in development-led contexts.

His passing is a great loss to the discipline, but his legacy endures in the many archaeologists he mentored, the theories he shaped, and the fieldwork and scholarship he inspired. ■

Roman Road discovered beneath Old Kent Road, London



MOLA

Right: A section of the exposed Roman road, which once formed part of Watling Street

Archaeologists have uncovered a remarkably well-preserved section of Roman Watling Street beneath Old Kent Road in London, marking the first physical evidence of the 2,000-year-old route in the area.

Known as Watling Street, the road once connected the Roman port of Dubris (Dover) to Londinium (London), and beyond into the West Midlands. The road served as a critical artery in Britain's Roman-era infrastructure.

The discovery was made during excavation work which was taking place as part of the expansion of Southwark's low carbon heat network.

Despite extensive modern activity, including the installation of sewers, tramlines, and power cables, a substantial section of the Roman road has survived. Measuring 5.8m-wide and 1.4m-high, the road's layered construction of compacted gravel, chalk, and sand remains visible, although the original surface is now lost.

Dave Taylor, project manager at MOLA (Museum of London Archaeology), described the find as "amazing", highlighting how the road has endured centuries of development. "There has been so much activity here over the past few hundred years, so we're really excited to find such a substantial chunk of Roman material remaining," he said.

Dr Chris Constable, Southwark Council's archaeology officer, added: "The extent of survival of the road is remarkable. We hope this project will answer some other archaeological questions in the borough."

This section of Watling Street helps fill in gaps about its exact route south of the Cantium Retail Park, where another section was excavated in the 1990s. A sign near the Old Kent Road bridge will commemorate the find, celebrating the area's rich Roman heritage alongside its vibrant contemporary character. ■

Kings' Tower at Corfe Castle to be opened to the public for the first time since the English Civil War

NATIONAL TRUST RICHARD GREGORY

A twelfth-century keep at Corfe Castle, known as the 'Kings' Tower', is set to welcome visitors for the first time since it was partially destroyed in 1646 during the English Civil War.

Built for King Henry I in around 1107, the tower was a cutting-edge masterpiece of its time. Constructed from gleaming white Purbeck limestone, it stood at 23m tall atop a 55m-high hill and could be visible for miles around. As the luxury personal quarters of the King, it featured a 'garderobe' – an early ensuite – as well as an 'appearance door' from which the monarch and his family could appear to his subjects, in a manner similar to how the balcony at Buckingham Palace is used today.

The King's Tower has been partially inaccessible since it was destroyed in 1646 by Parliamentarian troops during the English Civil War. However, a £2 million conservation project, launched in 2023 to protect the castle from effects of climate change, facilitated the installation of a viewing platform which will enable visitors to experience the tower with views of the surrounding Purbeck countryside.

James Gould, operations manager at Corfe Castle, said: "There is so much history to explore at Corfe through the eyes of kings both famous and infamous, and visitors will have a unique chance to experience it from this special vantage point. I'm personally excited to witness the changing seasons high above the landscape just as the kings of old would have."

The platform, which will remain in place until conservation work concludes, was granted permission by Historic England and stands independently of the historic structure. The conservation effort is being funded by the National Trust, a £150,000 grant from the Wolfson Foundation, and ticket sales from the platform experience. However, an additional £100,000 is still needed to complete the project.

NATIONAL TRUST

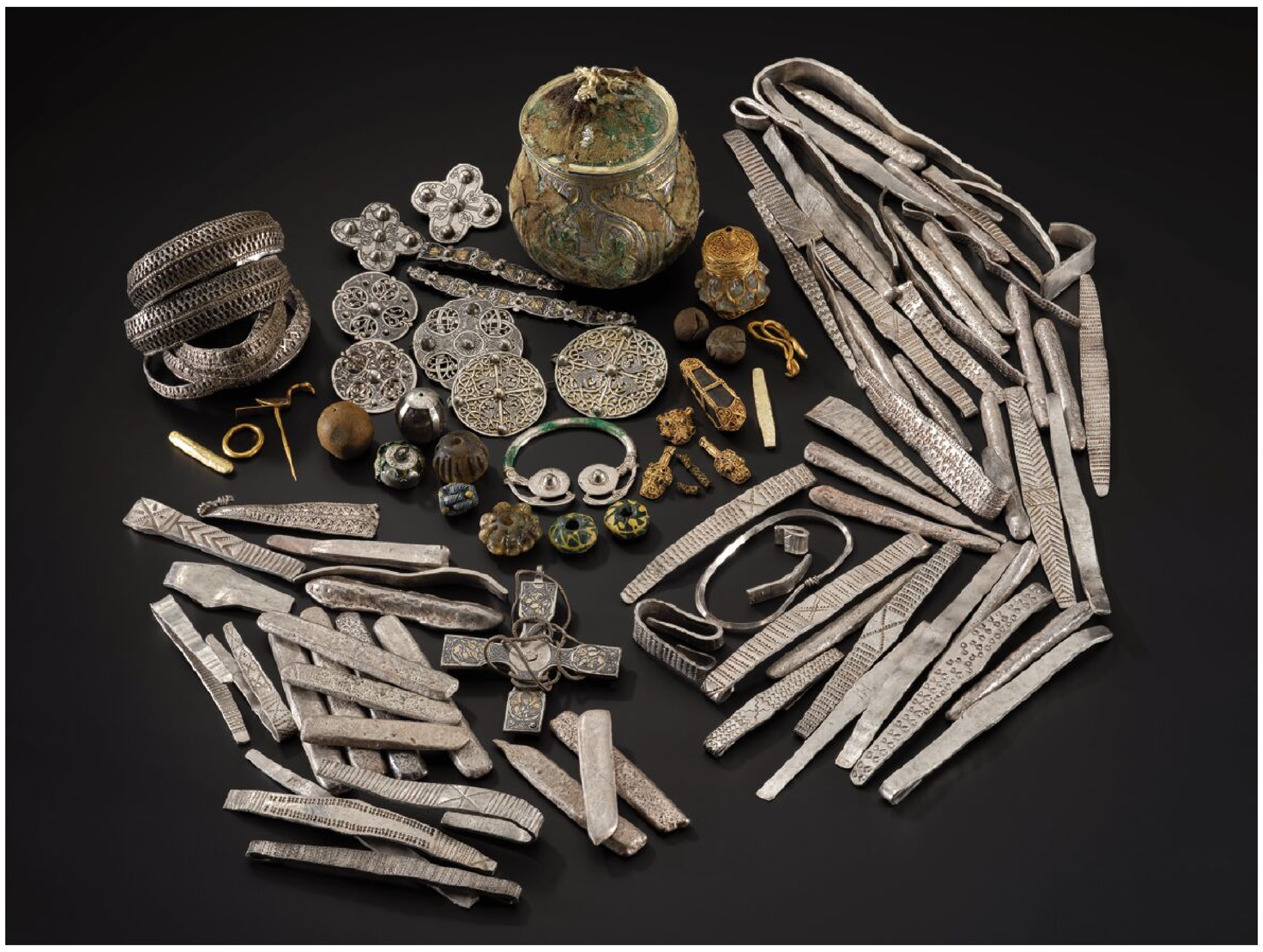
Top: View from the Kings View platform

Above: Corfe Castle

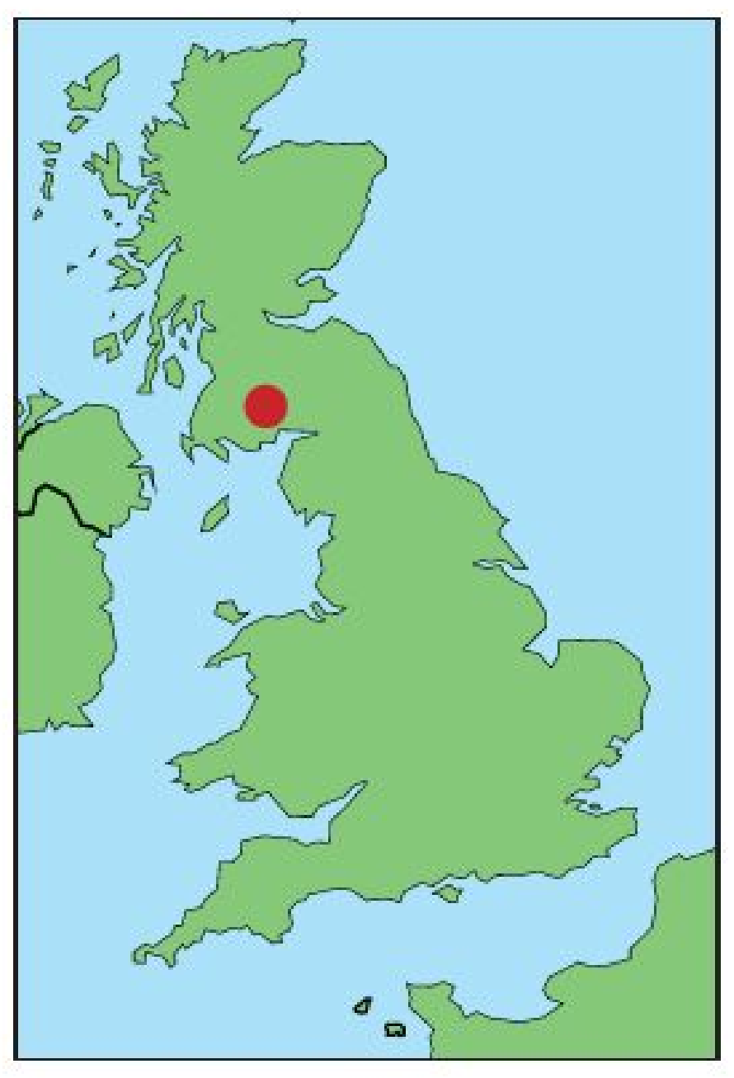
"We are extremely grateful to Historic England for allowing the platform to be erected to aid fundraising and secure the castle's future. The platform is something we have never built here before and might never repeat again, so we hope as many people as possible will take the opportunity to come and visit and experience a window into the world of kings," James added.

The King's View tours are available now and can be booked on the National Trust's website. ■

New runic translation reveals community ownership of the Galloway Hoard



NATIONAL MUSEUMS SCOTLAND [3]



Right top: The Galloway Hoard

Right: Runic inscriptions on items that were part of the hoard

A newly translated runic inscription on an arm ring from the Viking-age Galloway Hoard has shed new light on who it might have belonged to. The inscription, previously undeciphered, is now thought to read: "This is the community's wealth/property." The discovery suggests that the hoard, found in 2014 in southwest Scotland, may have been owned by a collective rather than an individual.

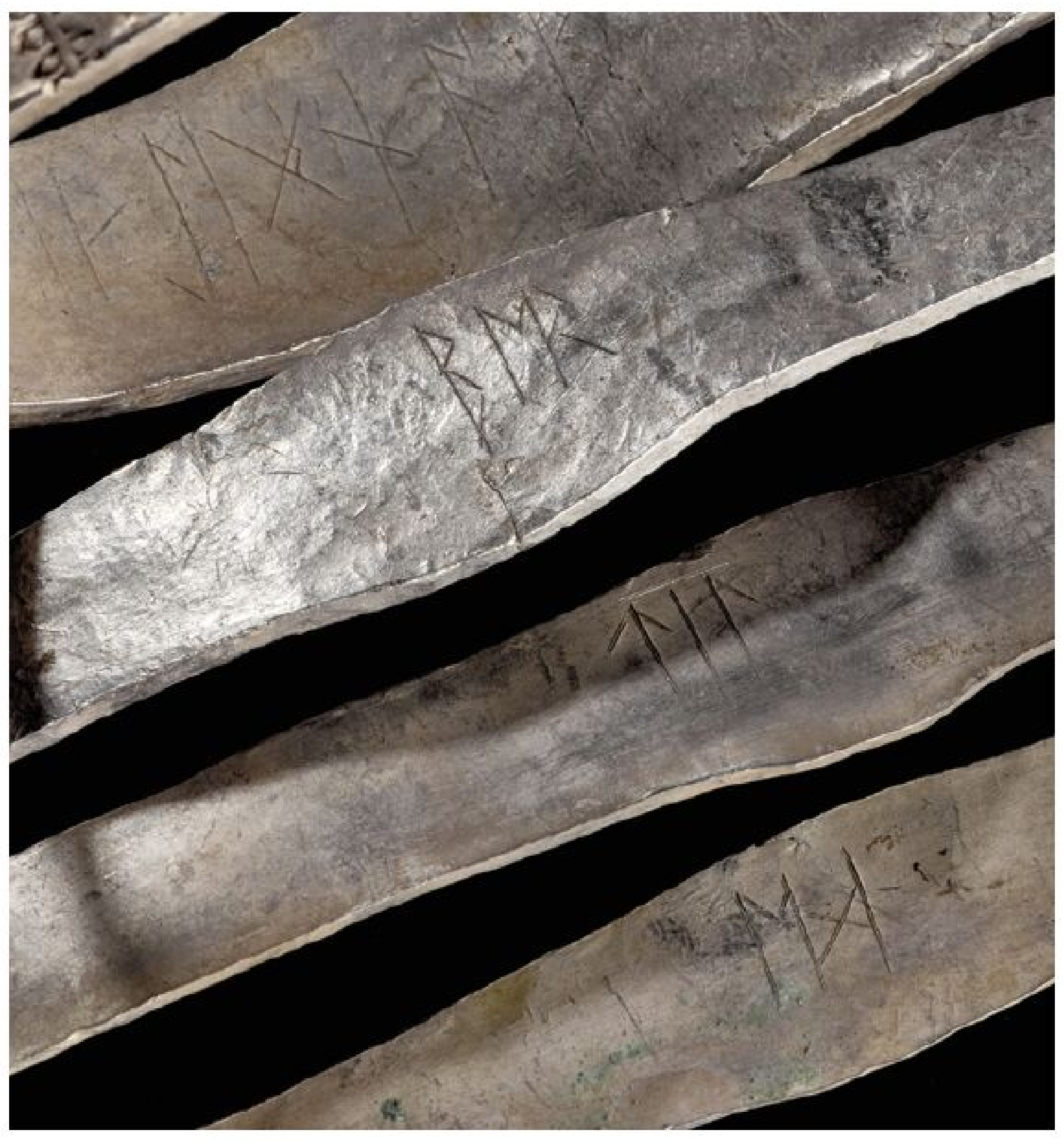
The Galloway Hoard was discovered in Balmaghie, Kirkcudbrightshire and consists of more than 100 gold, silver, glass, crystal, stone, and earthenware artefacts, buried in four distinct parcels.

Most intriguingly, it includes four silver arm rings, featuring runic inscriptions. Three of these feature Old English name elements, but the fourth, with the longest inscription, which reads 'DIS IS ÏIGNA ·F·', remained undeciphered because there was no recognisable direct translation.

However, researchers at National Museums Scotland have recently identified that the final rune in the inscription was marked with puncts, or dots, on either side, indicating it could represent the name of the F-rune, 'feoh' which means wealth or property. This allowed researchers to interpret 'ÏIGNA' as the Old English word for community, 'higna', unlocking the meaning of the inscription.

"This is another really interesting and significant development in our understanding of the Galloway Hoard," said Martin Goldberg of National Museums Scotland. "The idea that the wealth this hoard represents would be communally held is fascinating. It does still leave us with unanswered questions around the circumstances in which a community's wealth would come to be buried, and also which particular community."

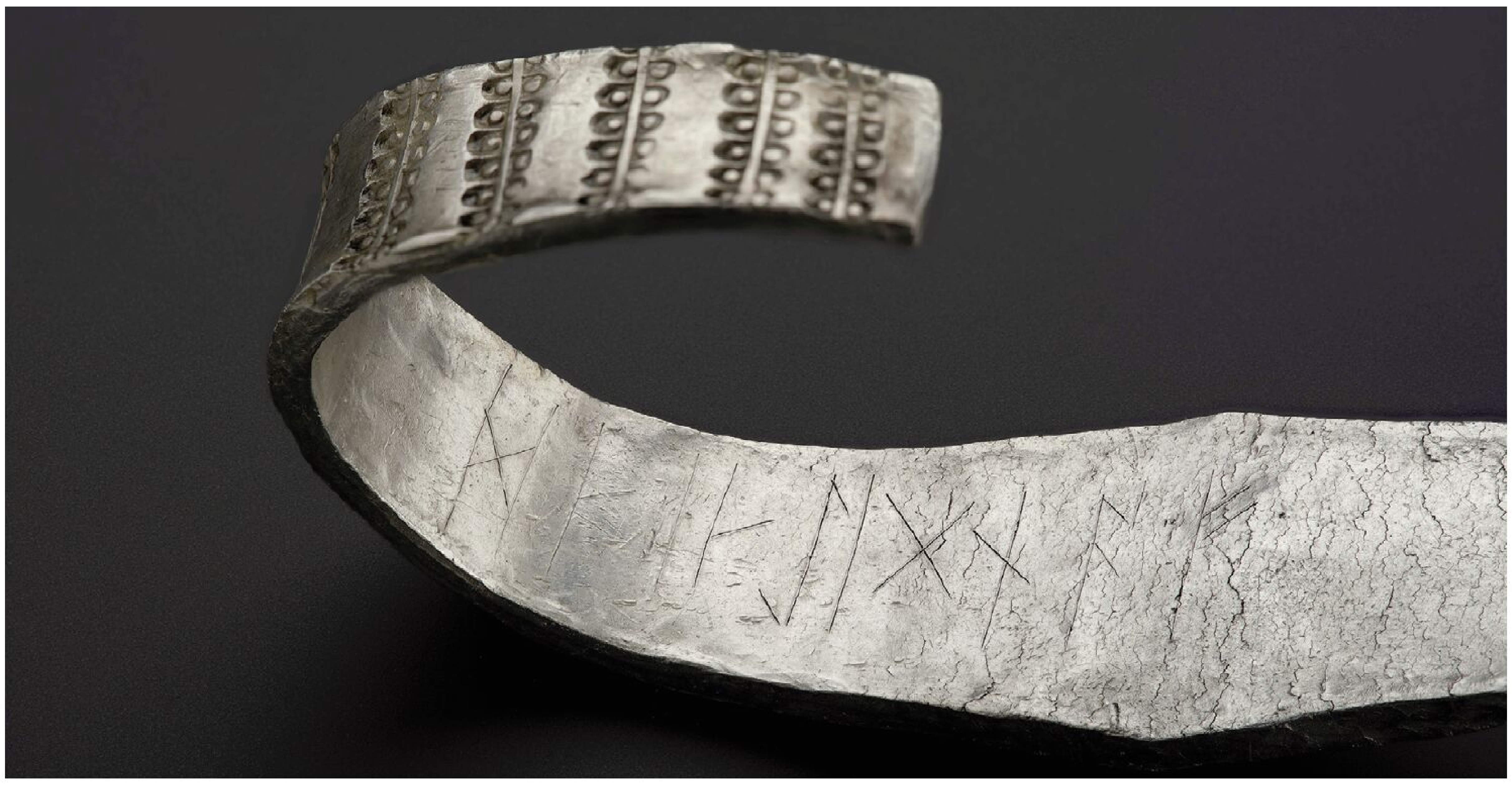
Some objects, including a pectoral cross and a rock crystal jar associated with Bishop Hyguald, suggest a religious community may have been involved. Runologist Dr David Parsons, University of Wales, who has worked on previous inscriptions from the hoard, described the text as "difficult and unusual," with "a number of things which are technically 'wrong' when we compare it with what we know about 'correct' runic writing."



"However, if we think about both spoken and written English today, there are a huge range of regional and idiomatic variations and, if we allow for this, then it becomes possible to accept this as a plausible reading," he added.

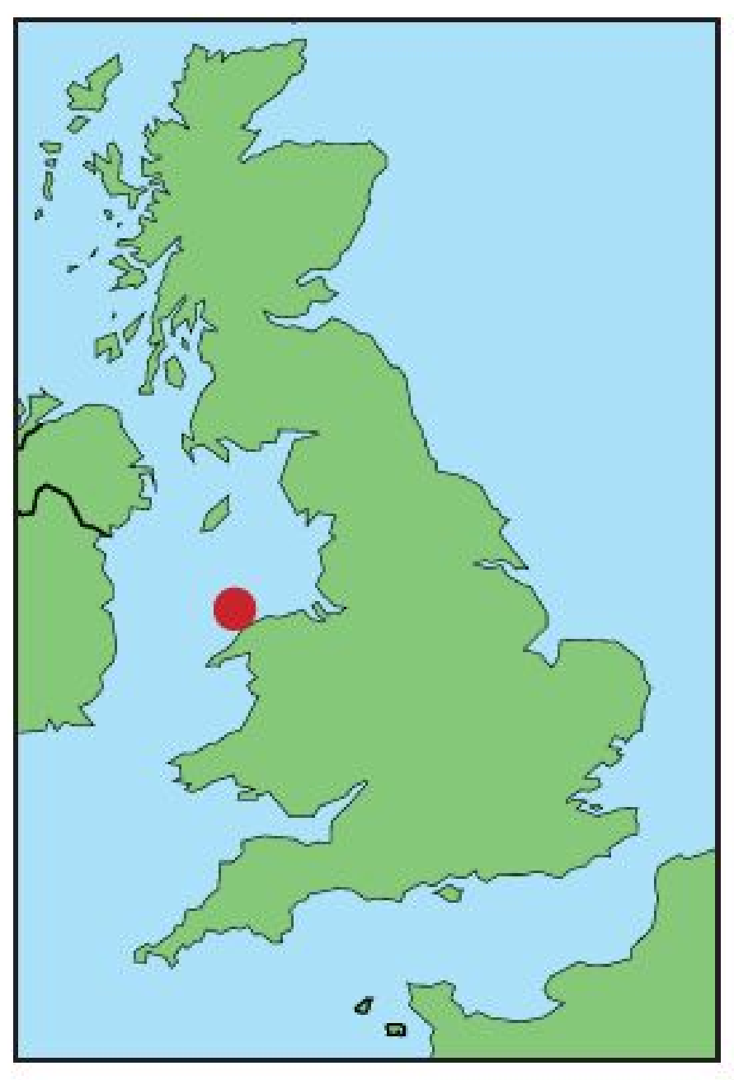
The discovery marks the conclusion of the *Unwrapping the Galloway Hoard Project*, a three-year research initiative led by National Museums Scotland in partnership with the University of Glasgow and supported by the Arts and Humanities Research Council. The project has revealed the exotic origins of some of the hoard's other artefacts, including a silver-gilt vessel which was traced to the Sassanian Empire, and even to a specific mine in modern-day Iran.

The arm ring is on display at the South Australian Museum in Adelaide as part of *Treasures of the Viking Age: The Galloway Hoard* touring exhibition. ■



Below: Galloway Hoard arm ring with runic inscription in view

Military veterans and service personnel uncover lost Iron Age artefacts beneath RAF airfield in Anglesey



HARVEY MILLS [2]

Left: The team on site, and below, one of the latest finds

A recent excavation at RAF Valley in Anglesey has uncovered long-lost Iron Age artefacts, now officially declared a national treasure. The finds, which include parts of a Celtic chariot dating back around 2,000 years, were unearthed during an excavation carried out by military personnel and veterans.

The project was led by the Defence Infrastructure Organisation (DIO) as part of Operation Nightingale, an initiative that aims to support the recovery of wounded, injured, and sick military personnel and veterans through involvement in archaeology.

Among the newly discovered artefacts were a decorated terret ring, a type of metal loop used to guide the reins of a chariot, and a horse bridle-bit, thought to date to c.AD60.

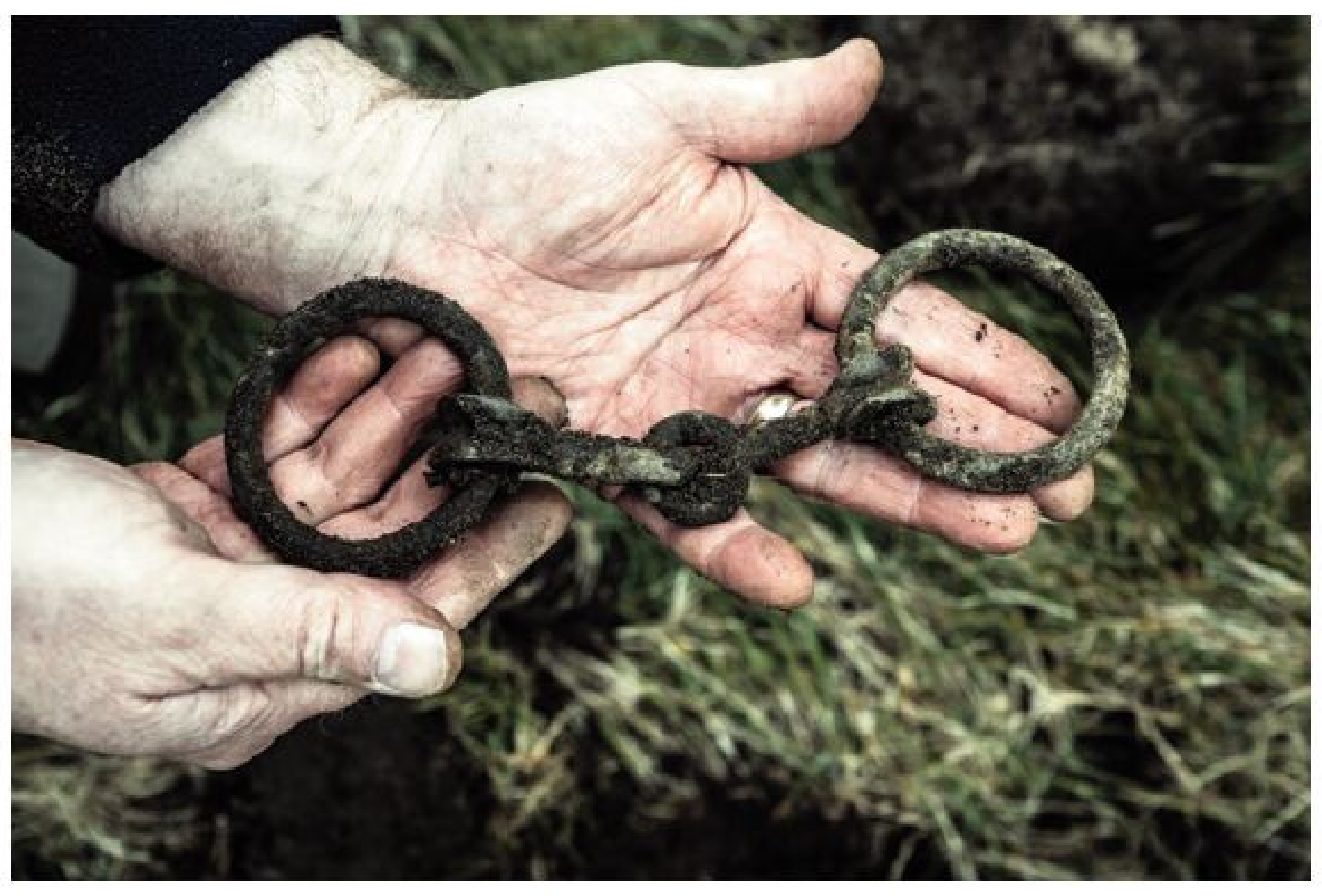
The finds are believed to form part of the Llyn Cerrig Bach hoard, a collection of over 150 bronze and iron objects deposited between 300 BC and 100, that was originally discovered in the 1940s as part of work to extend the airfield at RAF Valley for American bombers during the Second World War.

Richard Osgood, senior archaeologist at DIO, said: "These finds at RAF Valley are extremely exciting for all involved; the Llyn Cerrig Bach hoard is of national importance for Wales, and the United Kingdom as a whole. These new discoveries have confirmed the suspicions of earlier archaeologists that there was more to be found from this particular hoard."

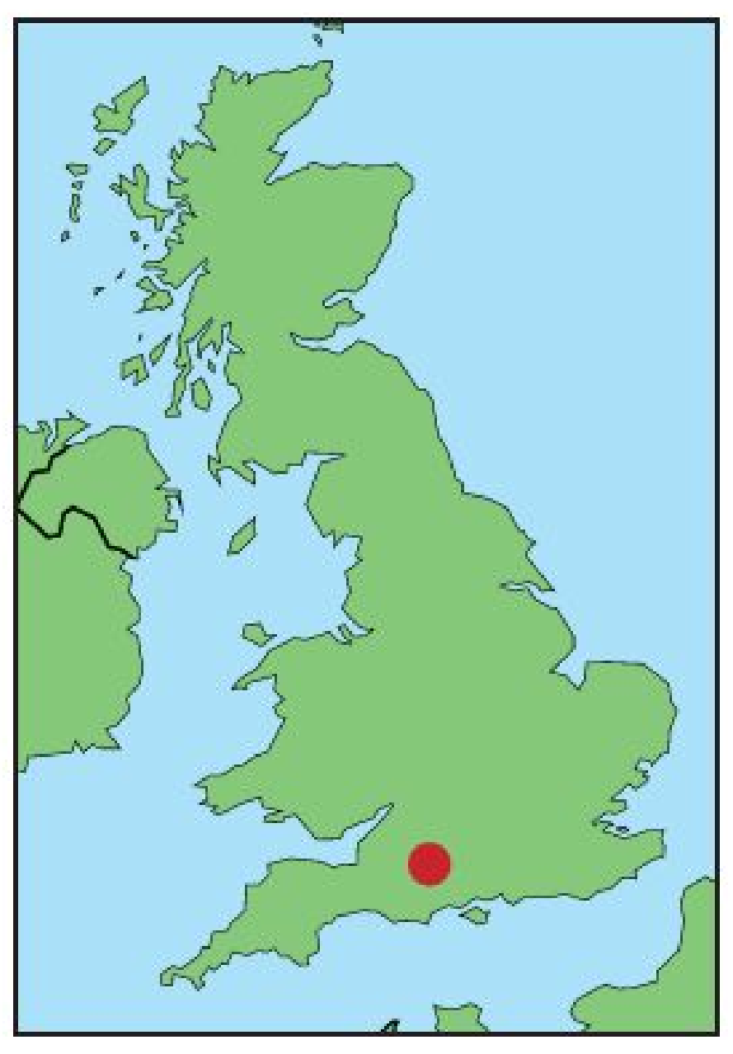
Retired RAF Squadron Leader David Ulke, who unearthed the terret ring, said: "To say I was over the moon is probably an understatement! I've been involved in archaeology for many years and this was by far the most significant recovery I have ever made."

Reflecting on the impact of the project, he added: "The fact that Operation Nightingale can bring together service personnel through archaeological digs shows how healing and helpful archaeology can be. It's by no means a silver bullet, but many have benefitted, and I for one am one of those grateful beneficiaries."

The artefacts will now be gifted to Amgueddfa Cymru – Museum Wales and displayed at Oriel Môn. ■



Well-City Salisbury secures National Lottery funding for three more years



WESSEX ARCHAEOLOGY

Left: Members of the Well-City Salisbury, Wessex Archaeology, Wiltshire Creative, Wiltshire Wildlife Trust, and ArtCare teams celebrate receiving received £368,135 of funding from National Lottery Community Fund

The groundbreaking Well-City Salisbury project, which supports people with low to medium mental health needs through arts and heritage courses, has been awarded £368,135 by the National Lottery Community Fund.

Following three successful years, the initiative will return in spring 2025 and continue to provide free creative courses for people of all backgrounds.

A collaboration between Wessex Archaeology, Wiltshire Creative, Wiltshire Wildlife Trust, and ArtCare, Well-City Salisbury uses a social prescribing model to enrol participants on 10-week courses in the arts, heritage, and nature.

Referrals are accepted from GPs, support organisations, and schools, although self-referrals are also welcomed.

The project aims to encourage meaningful connections between participants and their community, local heritage, and environment.

During its first phase, the initiative delivered 29 courses to 191 participants, with an impressive 85% achieving their own identified goals for attending their course. New funding will enable the programme to expand, involving new guest delivery partners and reaching a wider, more diverse audience, including online participants.

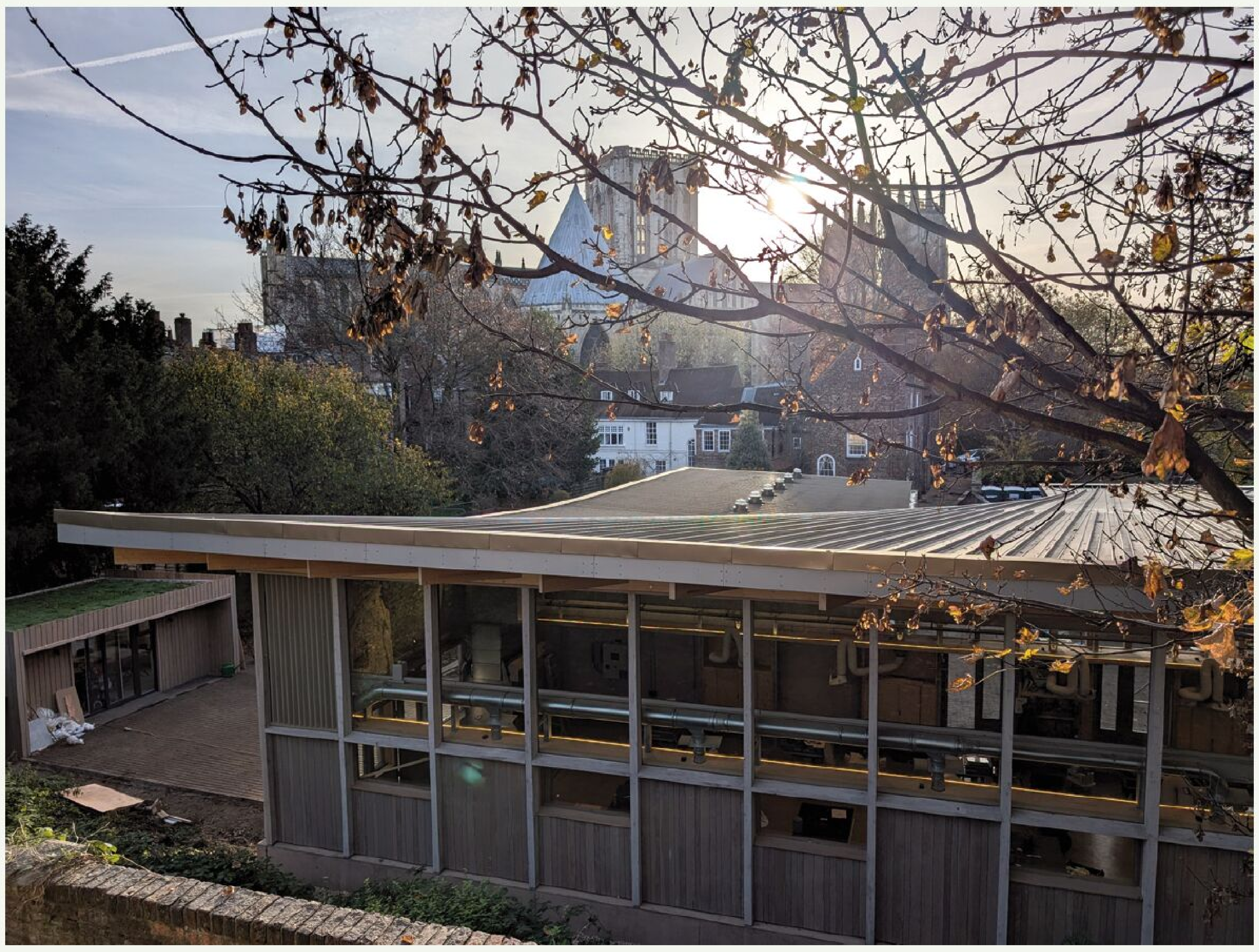
Leigh Chalmers, who leads the Well-City Salisbury project, expressed enthusiasm for the renewed funding: "This means we can build upon our successes from the first three years and present participants with more opportunities to engage with the project. We can't wait to welcome people back and to reach out to new people who might be interested in getting involved."

Dr Stuart Eve, chief executive of Wessex Archaeology, added: "The project has clearly shown that engagement with heritage can not only enrich people's lives, but also create new relationships, skills and opportunities for the Salisbury community and beyond."

For more information or to get involved, visit the project's website at https://www.wellcitysalisbury.co.uk/ ■

Traditional crafts to combat modern challenges at York Minster

Alex Rogers, CBA Youth Advisory Board member, reflects on a recent visit to York Minster's newly established Centre of Excellence for Heritage Craft Skills and Estate Management



CBA [2]

York Minster has recently finished the construction of a new home for York's stonemasonry industry. During the construction of this facility, several intriguing archaeological discoveries were found. These included remains from the Roman Legionary fortress, an old road built by those same legionaries, a centurion's brooch, a medieval fireplace, and an old vegetable garden which had provided fresh food to the dean's house.

However, the focus of this article is how the Centre for Excellence is going to help to preserve historic churches and monuments despite the ongoing and emerging threats they face, such as climate change, environmental damage, plant damage, decreasing maintenance budgets, and subsistence.

York already has the largest stone working facility in the country, currently visible outside of the Minster, but there is a desperate need for new apprentices and craftspeople to repair the damage to the Minster, and to other similar heritage sites across the UK, like parish churches, cathedrals, and the Houses of Parliament.

The Centre for Excellence is York's solution to this problem. This facility is a set of buildings and workshops that include a large machine workshop, a smaller, more traditional workshop, and a set of kitchens and rooms. Here, new apprentices will live and train in a custom-built modern facility which utilises solar roof tiles, heat pumps, and rainwater flushing toilets to give it as small a carbon footprint as possible.

For the first four years of their training new apprentices at the Centre for Excellence will train solely in the traditional hand skills of stonemasonry. In their final year they will break from these traditions and learn how to use modern technologies, like machine cutting, 3D modelling, and potentially 3D printing using stone dust.

Traditional stone masonry skills, combined with new techniques, allow stonemasons to complete their work faster, and more efficiently. A beautiful showcase of this process is the statue of Queen Elizabeth II, created to mark her Platinum Jubilee, but unveiled to commemorate her memory by King Charles III.

The statue is currently being displayed at the Minster. It was designed and modelled using traditional skills. 3D technology was then used to model and machine cut the rough shape of the statue, allowing the stonemason, Richard Bossons, to finish the work by hand in a matter of weeks, instead of the four months it would have taken using only hand tools.

In this facility, stonemasons will be able to produce either entirely or partly machine-cut stones. Fully machine-cut stones will not be used in the Minster but will be sold to churches and old buildings that cannot afford to buy hand-carved stonework for their repairs. In the future, stonemasons trained and working here will help to protect and renovate our historic monuments across the UK. ■

Top right: York Minster's newly established Centre of Excellence for Heritage Craft Skills and Estate Management, with York Minster (pictured right) in the background udig

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The world in antiquity

Summaries Dr Alison Edwards

Hyde Park Barracks in Sydney was constructed between 1817 and 1819 as a barracks for male convict labourers, but after the end of convict transportation to New South Wales in 1840, it was turned into the Female Immigration Depot.

The depot functioned for nearly 40 years, housing tens of thousands of unmarried female immigrants and children who travelled on subsidised passages. They stayed just a few days, before leaving for employment or to join their family. From 1862, the depot shared the site with a Destitute Asylum that housed women who were unable to support themselves because of age, illness, or disability.

The depot closed in 1887; the site became a series of law courts. Renovations to turn the site into a museum prompted salvage excavations in 1980-81, revealing extensive archaeological deposits including some 80,000 artefacts found beneath the floorboards of the main building. Not only did the dry and stable conditions of the underfloor spaces promote preservation of organic materials, but the use of a numbered joist system to record artefact contexts enables comparison between and within areas.

Right: Woody pear inked Xylomelum pyriforme, approximately 50mm long

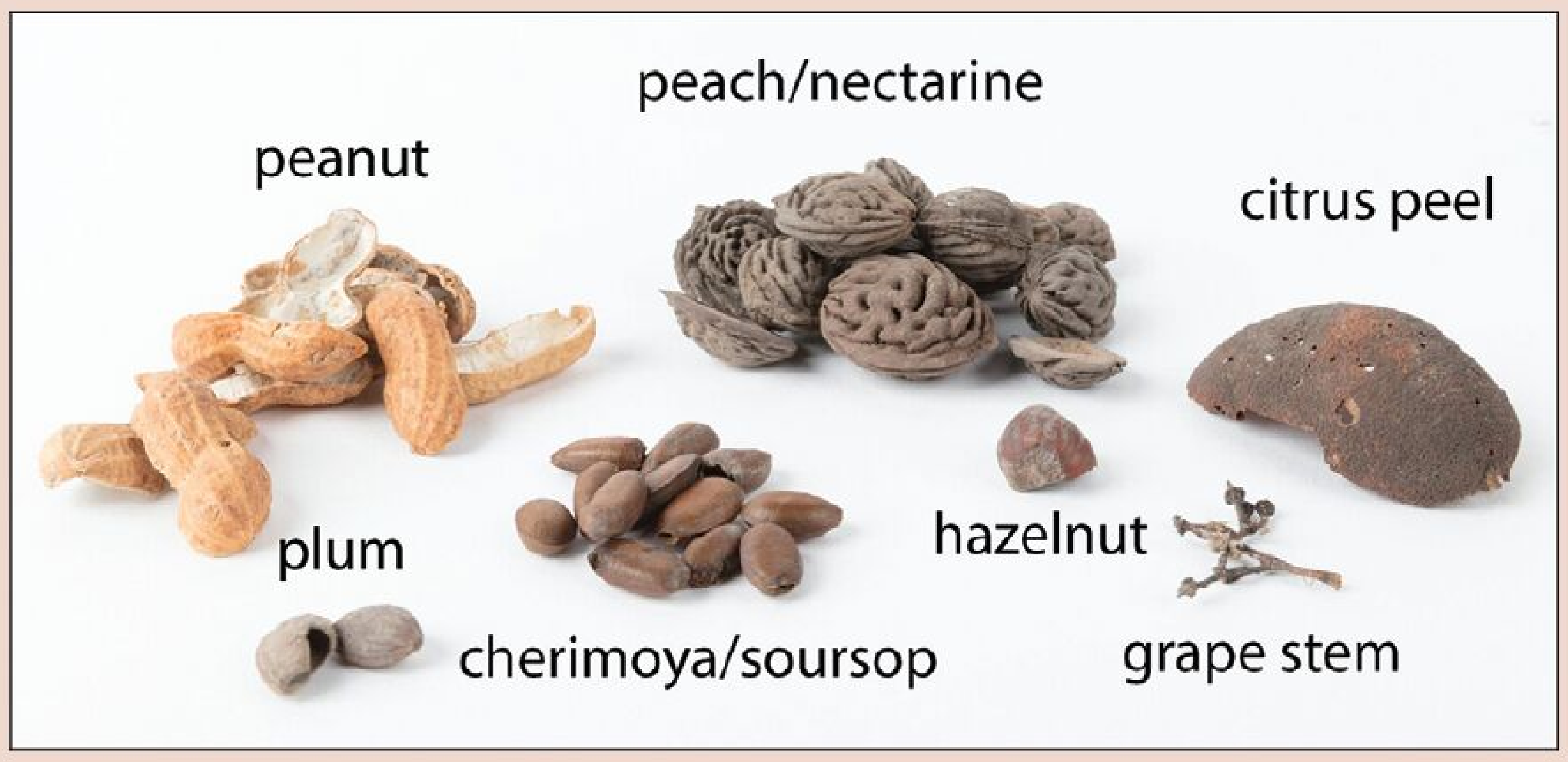
KIMBERLEY CONNOR

Desiccated plant remains found beneath the floorboards offer a rare insight into the culture of food for these women.

Food plays a central role in daily life and is vital for building communities, enforcing hierarchies, creating and maintaining identities, and resisting institutionalisation. However, accessing these facets of modern institutional life is difficult as inhabitants may conceal illicit food supplementation; reconstruction of historic diets is even more challenging as these are based almost exclusively on official documents.

The most abundant macrobotanical remains are stones from fruit including peaches/nectarines, cherries, plums, and apricots, which grew well in the Australian climate. Other Australian native plants included macadamias and quandongs. Other foods were imported from elsewhere, including lychees from South East Asia, corn, chili peppers, Brazil nuts, and pumpkins from the Americas. These show the extent and importance of global colonial trade networks at the period.

Mapping makes it clear that, rather than reflecting formal cooking and dining in the kitchens or dining rooms, the finds result from snacking in the dormitories and hallways, along with some cooking in the matron's quarters. In the dormitories, most of the botanical remains are from fruit or nuts: items that could be eaten raw. Some foods may have been cached under floorboards. Widespread finds of clay pipes, tobacco, and matches show that smoking was common.



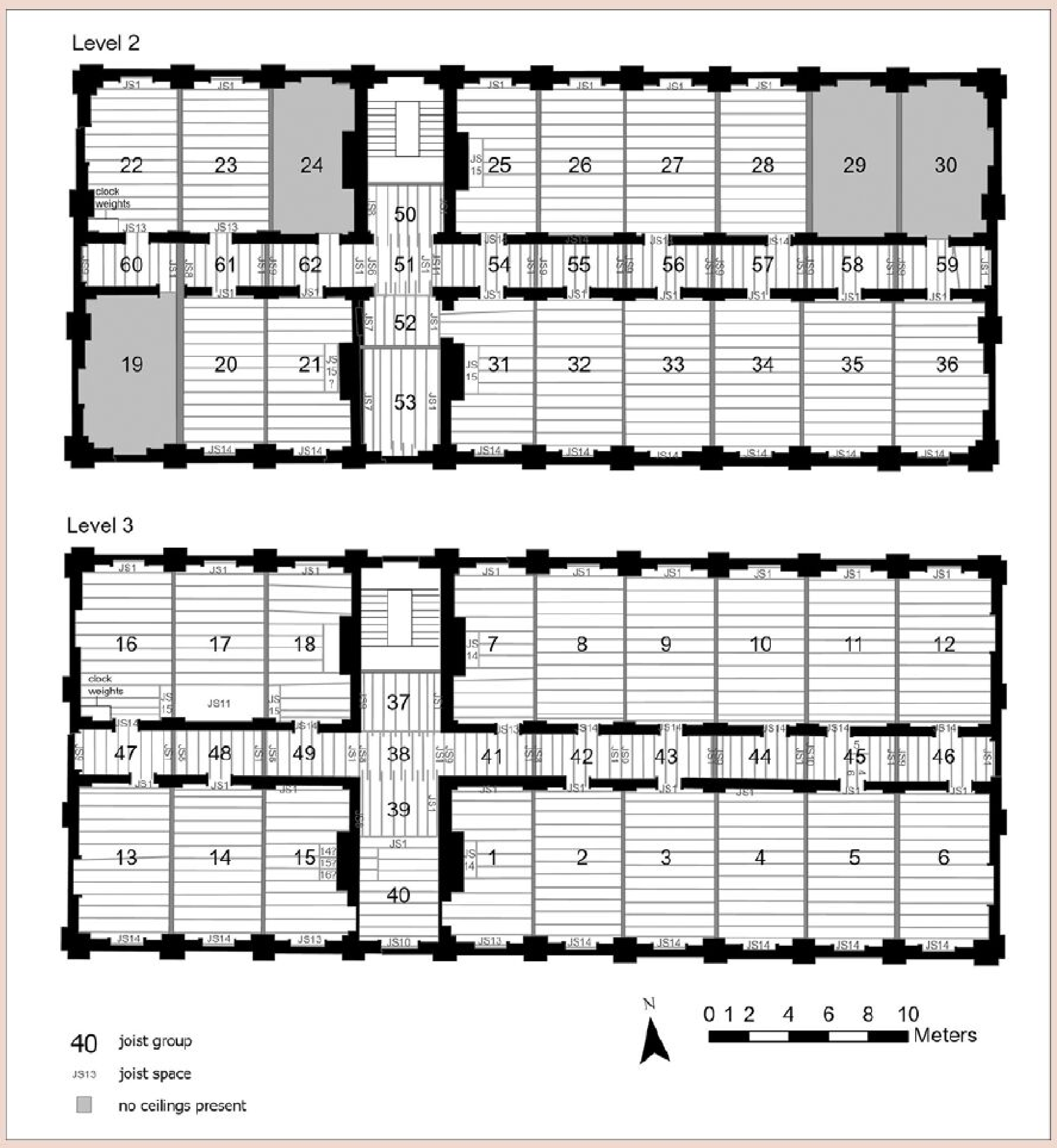
Above: Selection of plant remains recovered during the excavation of underfloor deposits, including fruit stones, nut shells, and dried citrus peel

JAMIE NORTH, COURTESY OF HYDE PARK BARRACKS COLLECTION, MUSEUMS OF HISTORY NSW

As with contemporary studies of institutional food, at Hyde Park Barracks we see the tension between the official diet – which enculturated immigrants in an idealised British diet of bread and meat – and unofficial food practices of the inhabitants, who supplemented their meals with fresh fruit and nuts.

The foods and consumption habits shown are almost entirely absent from historical records. Despite growing bodies of literature on the archaeology of institutions, and on food in anthropological and historical accounts of institutions, the potential for historical archaeological studies of institutional food remains has yet to be fully explored.

"Eating in colonial institutions: desiccated plant remains from nineteenth-century Sydney" by Kimberley G. Connor, Stanford University



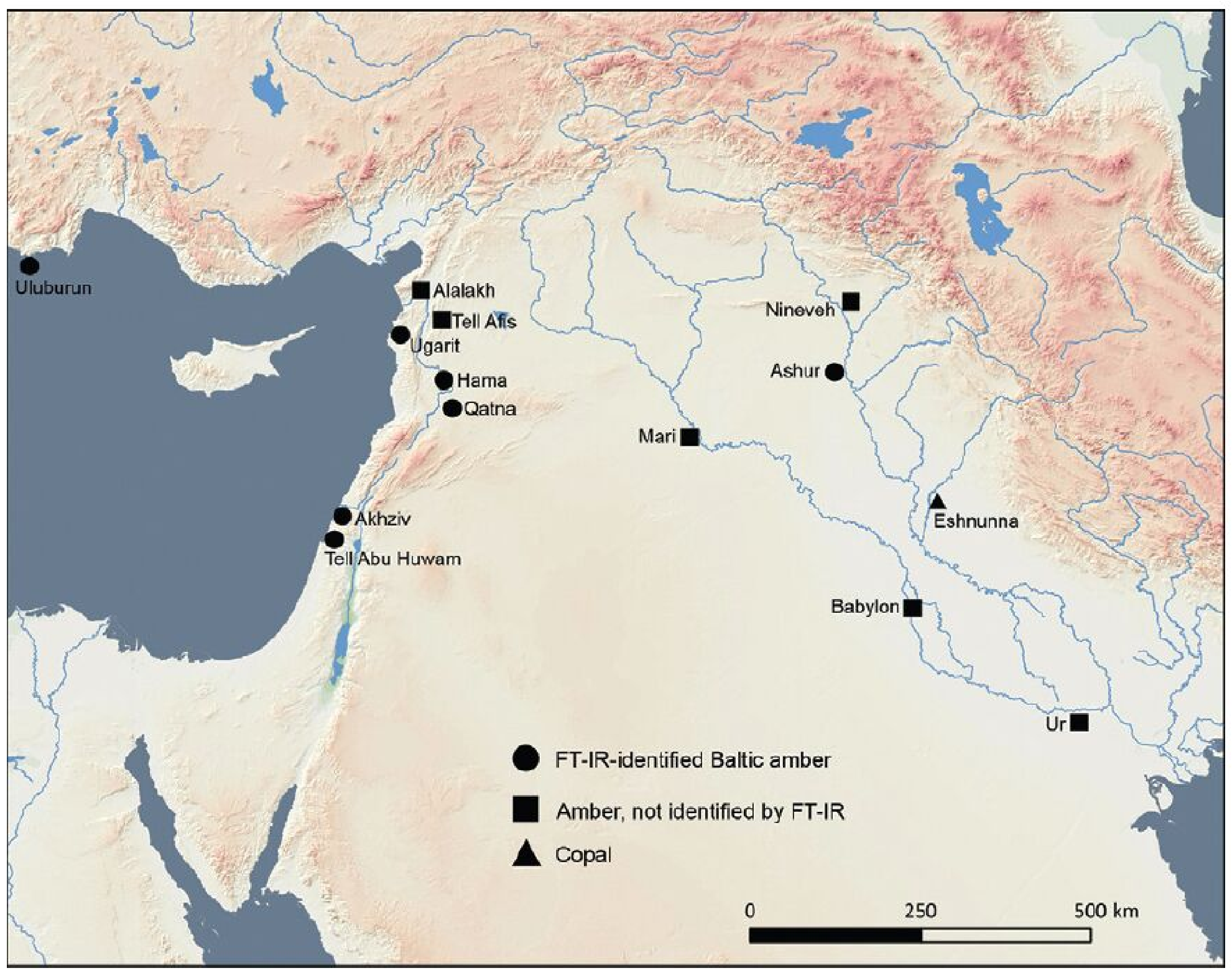
Above: Layout and numbering of the underfloor spaces on levels 2 and 3 of Hyde Park Barracks

KIMBERLEY CONNOR

Widening and diversifying trade networks are often cited among the boom and bust of Bronze and Iron Age worlds. The great distances that goods could travel during these periods are exemplified by the spectroscopic identification of Baltic amber beads in an Iron Age cremation grave at Hama in Syria. The ancient city of Hama was excavated between 1931 and 1938 by a team of Danish archaeologists. The Hama Collection has since become an invaluable resource for archaeological research, particularly as the current political climate still prevents fieldwork in Syria.

The mound that marks the ancient city sits in the middle of the modern city of Hama. The city is strategically placed on north-south and east-west communication routes, which may account for its longevity; the settlement on the mound has the longest continuous sequence of occupation in western Syria, spanning nearly 8,000 years, from the Late Neolithic through to the Ottoman period (c.6500 BC-AD 1400s).

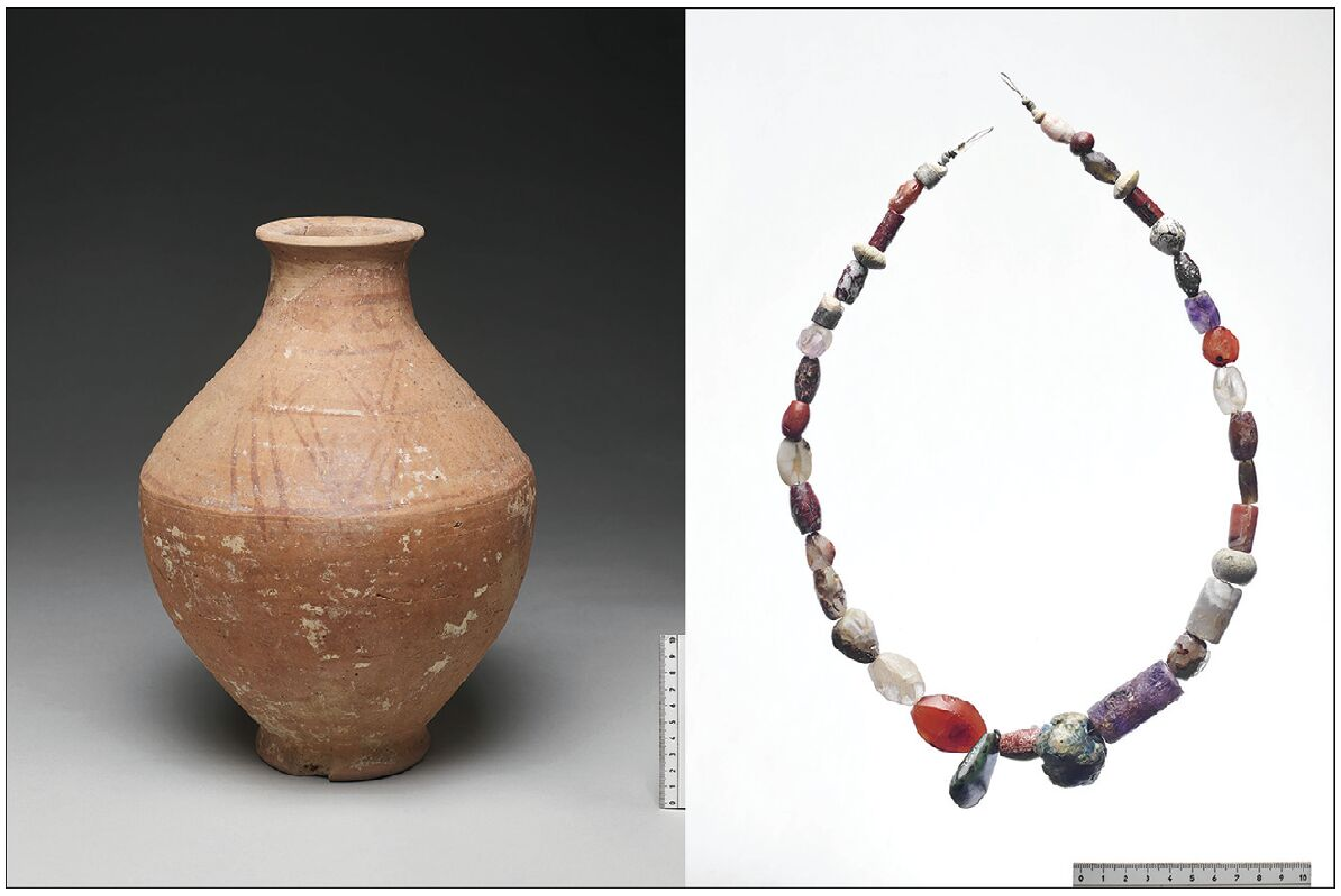
In the southern part of the mound, an Iron Age 'Royal Quarter' was excavated, comprising several monumental buildings arranged around a large plaza, two of which are interpreted as royal palaces. About 300m to the south/southwest of the mound, 1,682 Iron Age cremation graves were uncovered and excavated. The cemetery was established c.1100 BC and remained in use until the destruction of the city in 720 BC, when the 'Royal Quarter' went up in flames.



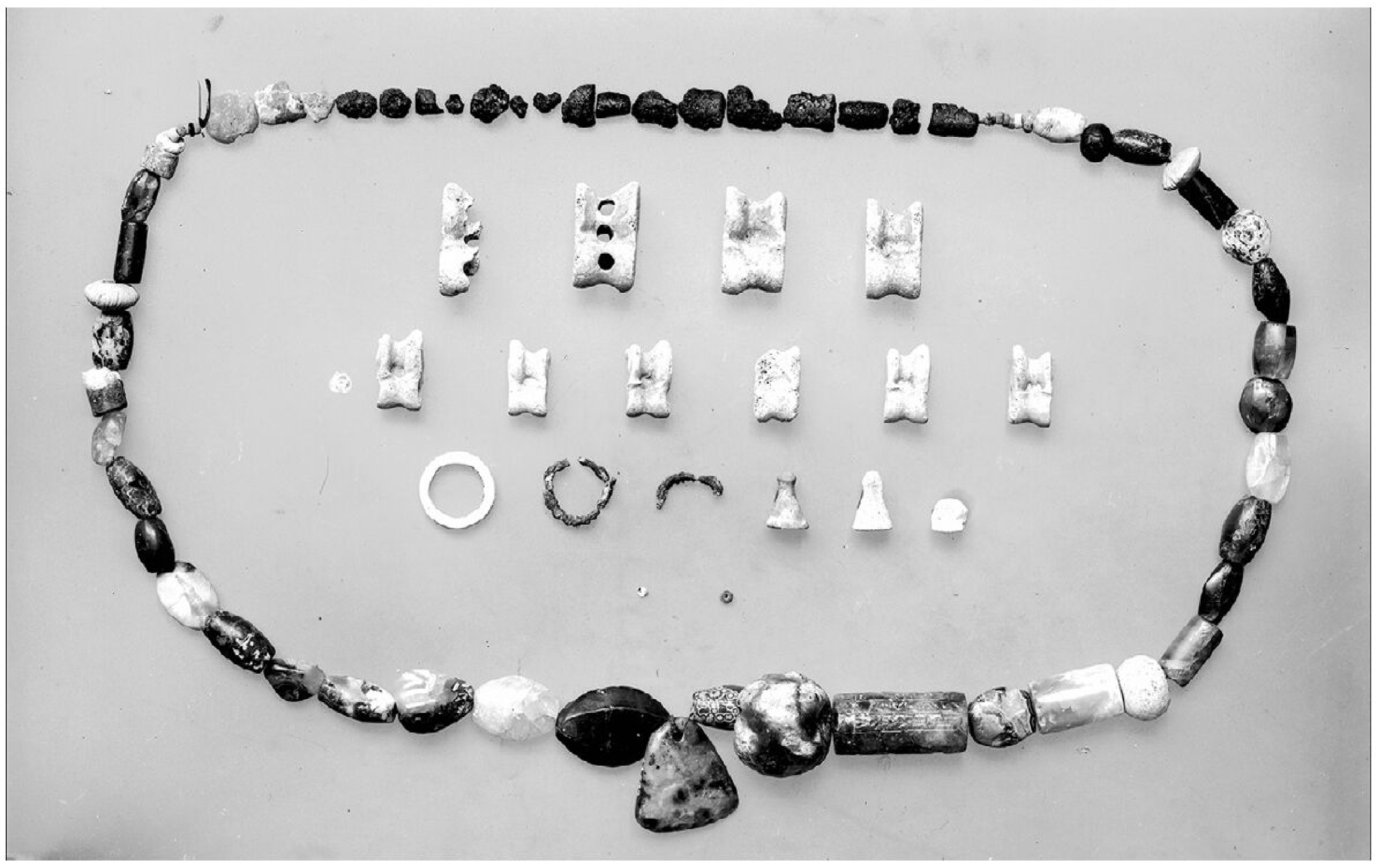
MORTENSEN ET AL

Above: Location of Near Eastern sites mentioned in the text

Below: The funerary urn 6A947 and the reconstructed necklace from Grave XII15, without the amber beads



FORTUNA & HANSEN, NATIONAL MUSEUM OF DENMARK



RIIS

Above: Original photograph of the contents of funerary urn 6A947 from Grave XII15. Note the fragments of amber beads laid out in the upper part of the reconstructed necklace

Beads were found inside a funerary urn containing the cremated remains of an adult female and a child. Among the beads were 17 fragments that had a distinctly different appearance, resembling amber, that were too degraded to be re-strung during the reconstruction of the necklace in the 1930s.

Inspection of the fragments under a stereoscopic microscope confirms that some are broken in half along their length and a visible depression indicates that a hole was drilled in the beads. The 17 fragments, therefore, may represent 10-15 beads.

Two of the fragments were analysed using FT-IR and gas chromatography-mass spectrometry (GC-MS) and compared with Baltic amber reference measurements from a known source. Direct comparison of spectra from beads 1 and 2 and the Baltic amber reference shows that they are almost identical, demonstrating that the Hama beads are likely to be amber from a Baltic source.

Amber-rich soils exist along the coasts of Denmark, Poland, and the Baltic states. The 'Amber Road' networks through Europe, from the Baltic region to the Mediterranean, involved the southward transportation of Baltic amber (and other goods) from at least the Early Bronze Age (early second millennium BC) onwards. By the time the funerary urn with the Baltic amber beads was buried, Hama – one of the longest-lived cities in Syria at that time – had already been developing extensive trading networks within and beyond the region for more than 5,000 years. Regional and interregional connections continued through the second millennium BC.

During the Iron Age, Hama was the southernmost of the Syro-Hittite kingdoms, controlling a significant part of western and central Syria. Amber, as a commodity that covered one of the longest distances to reach the city, would have been a highly valued material. Goods typically increase in economic, social, or ritual value the greater the distance from their place of origin. The amber finds at Hama add another location to the map of Baltic amber occurrences in the Near East and underline the social and economic value of this liminal and highly sought-after material.

"All the way from the Baltic: amber beads from an Iron Age grave at Hama, western Syria" by Martin N. Mortensen et al, National Museum of Denmark

Right: The location of the Svingerud site

Runes are an early Germanic alphabetic script; their origin is debated but the older futhark (the oldest of the runic alphabets) was in use until around the year 700. Among the earliest certain runic finds are inscriptions on portable objects from Denmark, such as a bone comb from Vimose, archaeologically dated to 160, and an iron knife from the island of Funen, dated to 150.

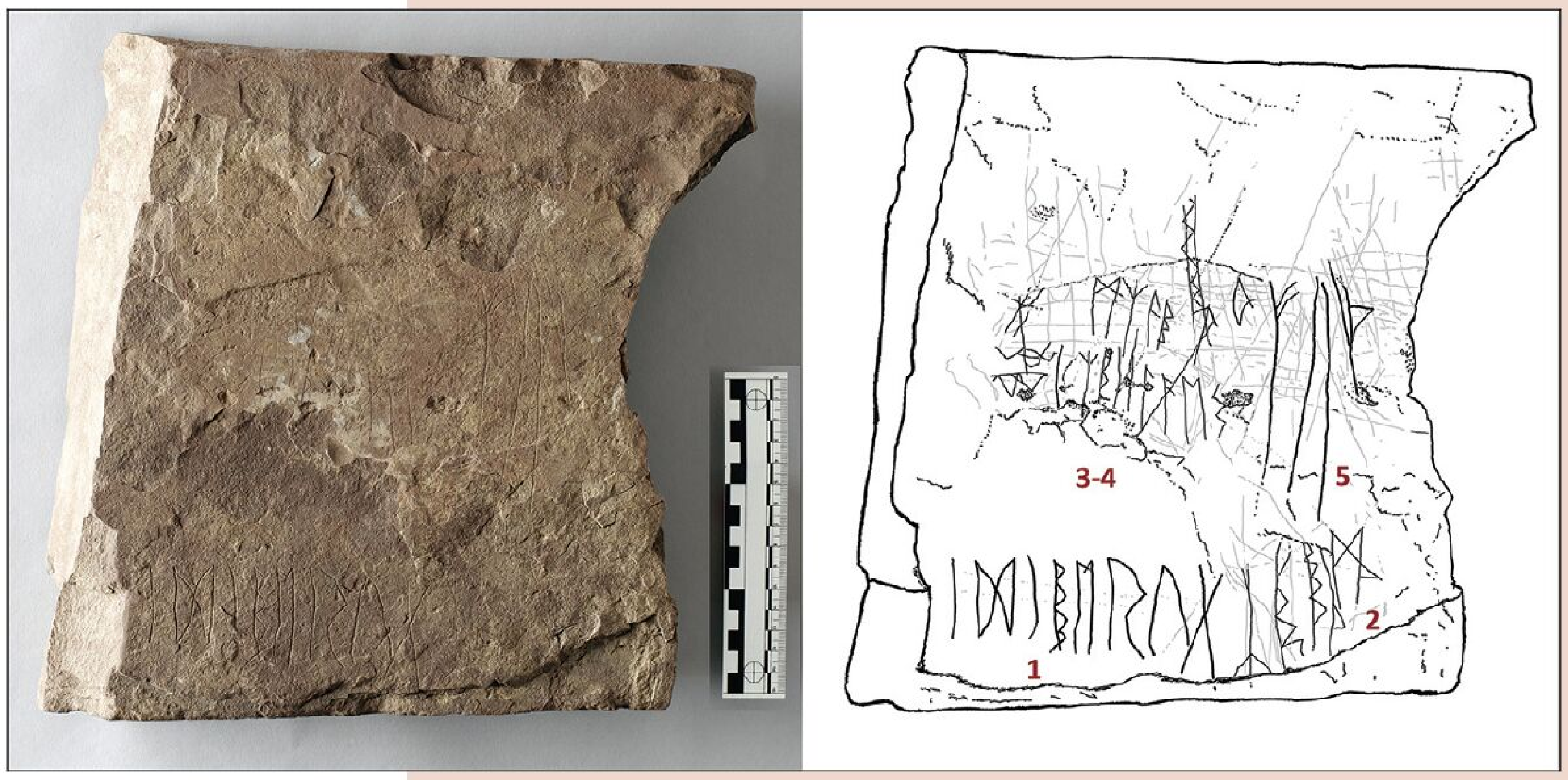
Discoveries of rune-stones with inscriptions in older runes are rare. The features and functions of rune-stones were varied; commemorative inscriptions are common.

Between 2021 and 2023, the Museum of Cultural History, University of Oslo, excavated the grave field Svingerud in Hole, Norway. In a flat grave beneath one of the grave mounds, a sandstone fragment with runes was uncovered. Additional fragments with runes were discovered in other contexts during multiple excavations.

Detailed examination confirms that the fragments are all from the same original slab, while the inscriptions may represent different acts of carving.

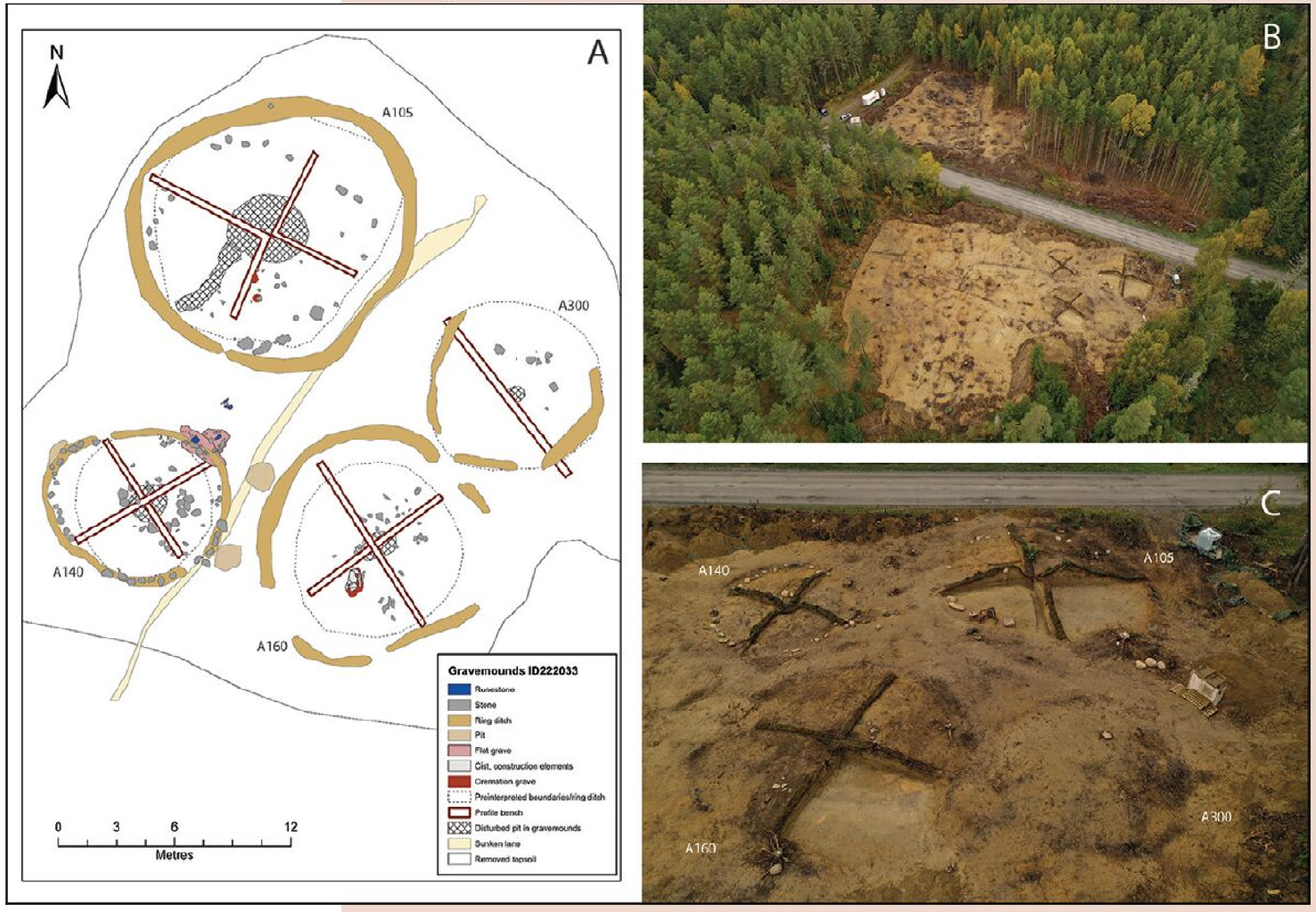
Below: Runic markings on Hole 2, side A

PHOTOGRAPH BY GEORGE ALEXIS PANTOS; DRAWING BY KRISTEL ZILMER

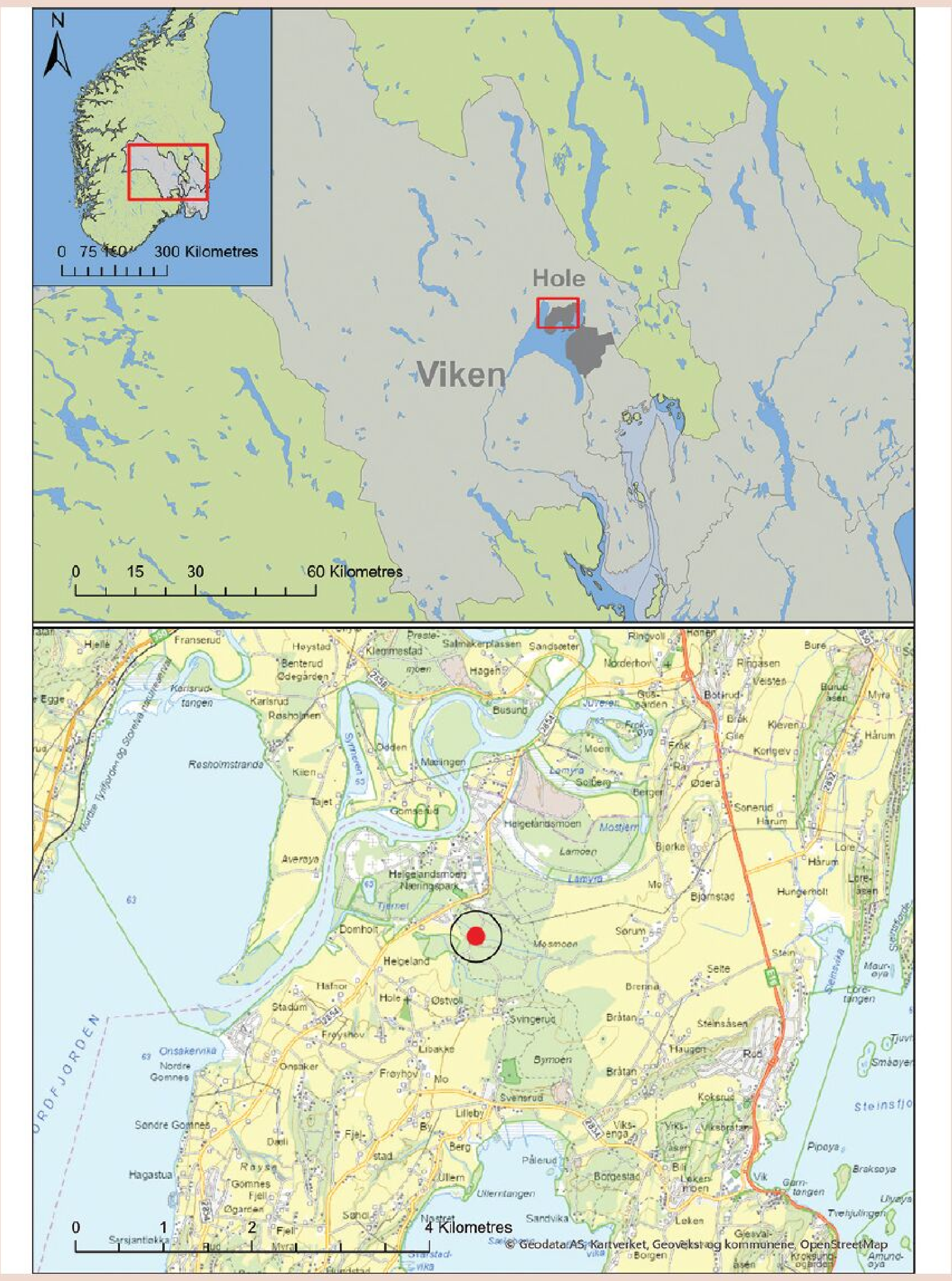


Associated radiocarbon dates indicate that this is the earliest dated rune-stone found so far, from between 50BC and AD275. This is a rare example of finding several fragments of a rune-stone, with some of the fragments in well-preserved, datable archaeological contexts.

MAP BY CHARLOTTE NUEVA FINNEBRÅTEN, PHOTOGRAPHS BY MUSEUM OF CULTURAL HISTORY


A
N
A105
A300
A140
A160
Gravemounds ID222033
Runestone
Stone
Ring ditch
Pit
Flat grave
Cist, construction elements
Cremation grave
Preinterpreted boundaries/ring ditch
Profile bench
Disturbed pit in gravemounds
Sunken lane
Removed topsoil
0 3 6 12
Metres
B
C
A140
A105
A300
A160

Above: Plan of the Svingerud site: A) all the structures at the site; B) the location in the modern landscape; C) the mounds during excavation


N
0 75 150 300 Kilometres
Hole
Viken
0 15 30 60 Kilometres
0 1 2 4 Kilometres
© GeodataAS, Kartverket, Geovekst og kommunene, OpenStreetMap

CHARLOTTE NUEVA FINNEBRÅTEN & JOHN ASBJØRN MUNCH HAVSTEIN

Hole 1 (the largest fragment, which was probably the base of an upright standing stone) bears incised marks, while fragments Hole 2 and Hole 3 have runic inscriptions and other markings.

Hole 2 was inscribed after being broken off the rest of the slab, because runes appear along the narrow edge. The inscriptions may include names and a series of consonants.

Hole 3 was found as four fragments. Reassembled, they have 16 or 17 runes and at least two separator marks of multiple small dots. The rune carver's epithet included the name *Gul(l)u/Wu(l)lu* or *Swul(l)u/Skul(l)u*, suggesting the carver was a woman.

Repeated multi-pocket and zigzag shapes may recreate central elements of inscription and their underlying events as symbolic ornaments, or they may represent versions of rune-like forms, as practised by different hands.

The original Hole stone – now in multiple fragments – was of a rock type suitable for inscribing with a sharp tool, and once possibly stood in an upright position as indicated by the positioning of the in situ Hole 1. The site links the stone to burials, but it is unknown how and why its fragmentation occurred, and when, and why the inscriptions were created.

The early date for the stone will necessitate re-assessments of other early rune-stones and their relative chronologies. The discovery may also have consequences for scholarly debates on the age and origin of runes, and developments in early runic epigraphy.

"Inscribed sandstone fragments of Hole, Norway: radiocarbon dates provide insight into rune-stone traditions" by Steinar Solheim et al, Museum of Cultural History, University of Oslo

Excavations at Kom el-Nugus/Plinthine have revealed a large town from the seventh century BC. The recent discovery of a major New Kingdom (c.1550-1069 BC) settlement at the site is contributing to re-evaluation of the ancient history of northern Egypt.

Kom el-Nugus is 43km west of Alexandria, on a rock ridge between the Mediterranean Sea and Lake Mariout. Now covered with fig orchards, the site includes a Hellenistic necropolis to the west and a wide horseshoe-shaped mound (the 'kom') to the east. The mound opens to the south, towards a Hellenistic town stretching to the shores of the lake.

Work undertaken in the centre of the kom has led to the unexpected discovery of a mudbrick settlement dating back to the New Kingdom, the first discovered north of Lake Mariout, in an area generally considered to have been occupied only from the Hellenistic period onwards.

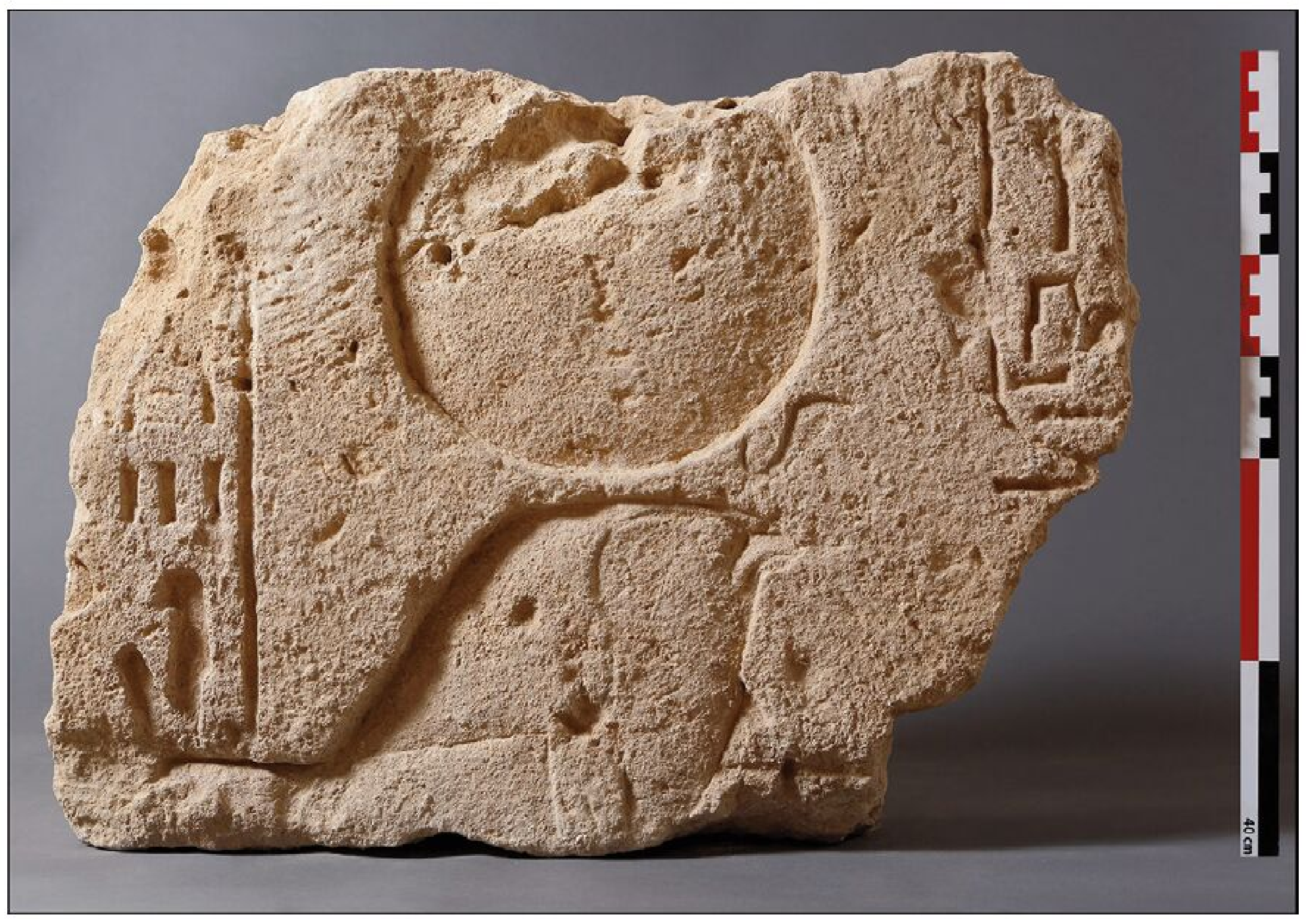
This settlement was likely founded during the Eighteenth Dynasty (c.1550-1292 BC), as shown by an amphora stamp bearing the name Merytaton – the daughter of Akhenaton and Nefertiti. Since 2022, the discovery of well-preserved levels and structures is bringing new dimensions to this New Kingdom settlement.

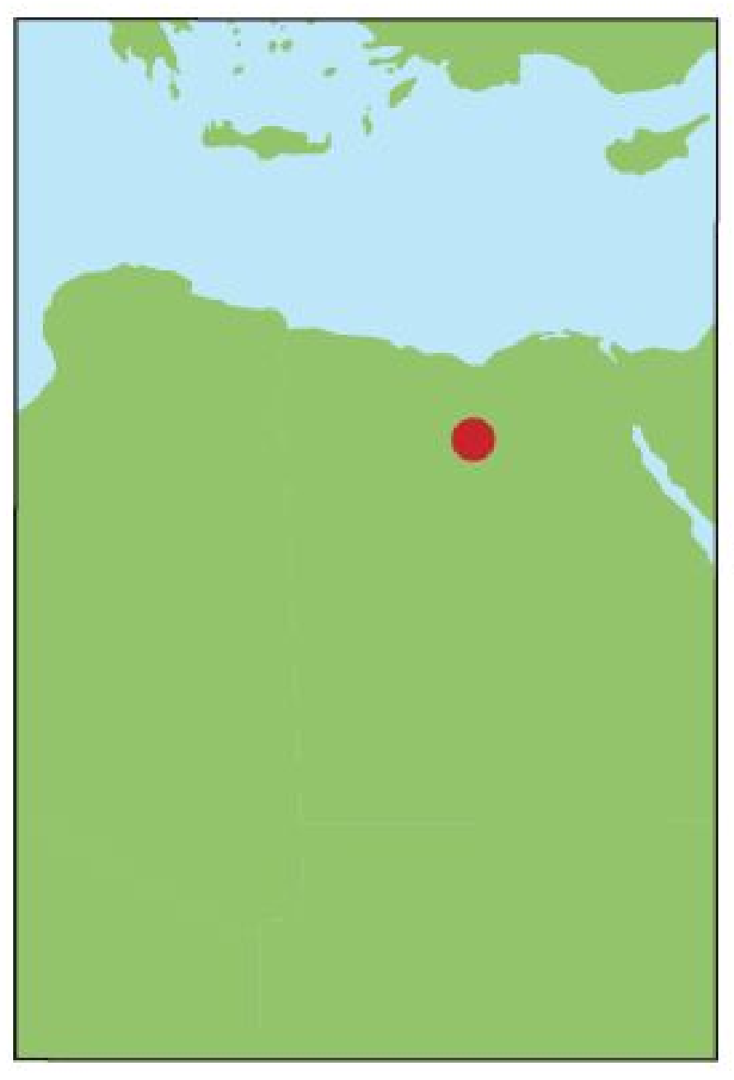
In a narrow space which survived Hellenistic modifications, excavations revealed two groups of buildings, arranged on either side of a street. The first phase includes a set of walls forming at least two rooms. The second phase consists of several distinct stages, the first of which saw the construction of two buildings. These are linked to a street that slopes slightly to the south, with a water-collecting system to drain surface water and protect the bases of the adobe walls.

Much work remains to be done at Kom el-Nugus, by extending the excavations. The name of the settlement has yet to be identified. The restructuring of the buildings – in stages that appear to have taken place in quick succession – raises the possibility that this was a seasonal or intermittent settlement, as in the case of temporary military garrisons.

At present, the finds do not allow an adequate characterisation of the occupation; further work is needed to shed light on the New Kingdom history of the Mediterranean coast.

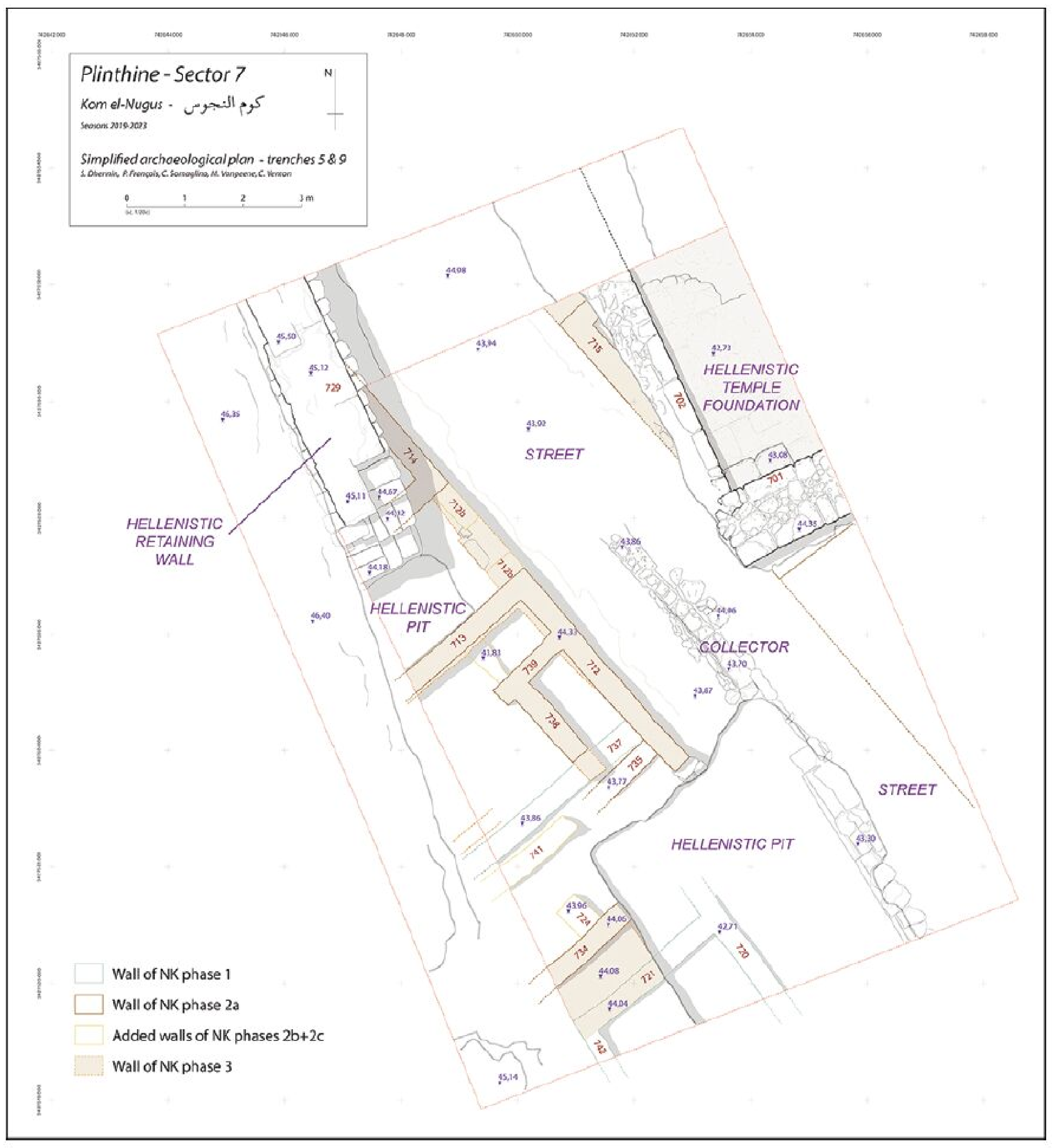
"A new Ramesside settlement north of Mareotis Lake (Kom el-Nugus, Egypt)" by Sylvain Dhennin, Maison de l'Orient et de la Méditerranée, Lyon



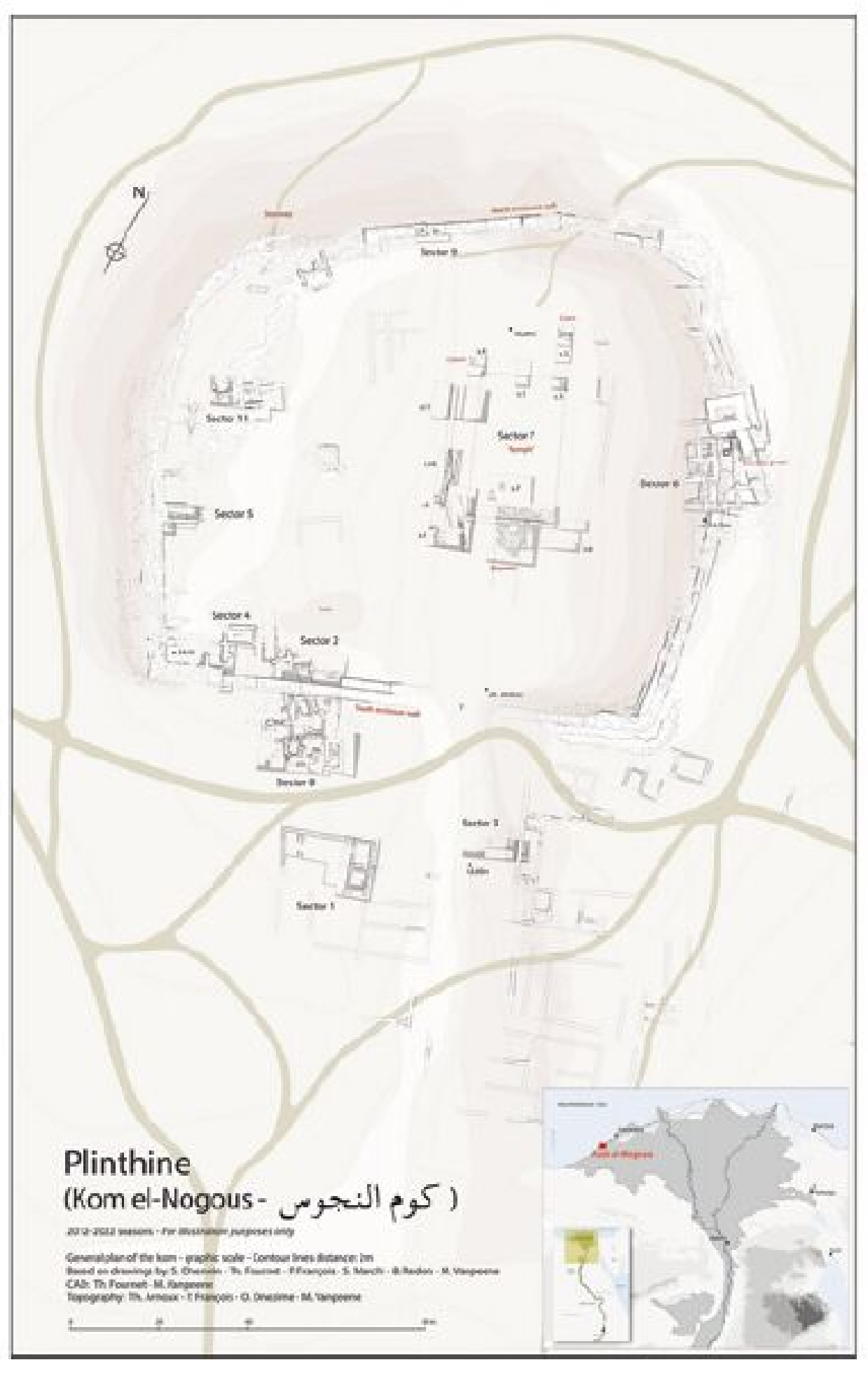


***Left top:* Block depicting Ra-Horakhty from the temple of Ramses II**

G. POLLIN/ INSTITUT FRANÇAIS D'ARCHÉOLOGIE ORIENTALE

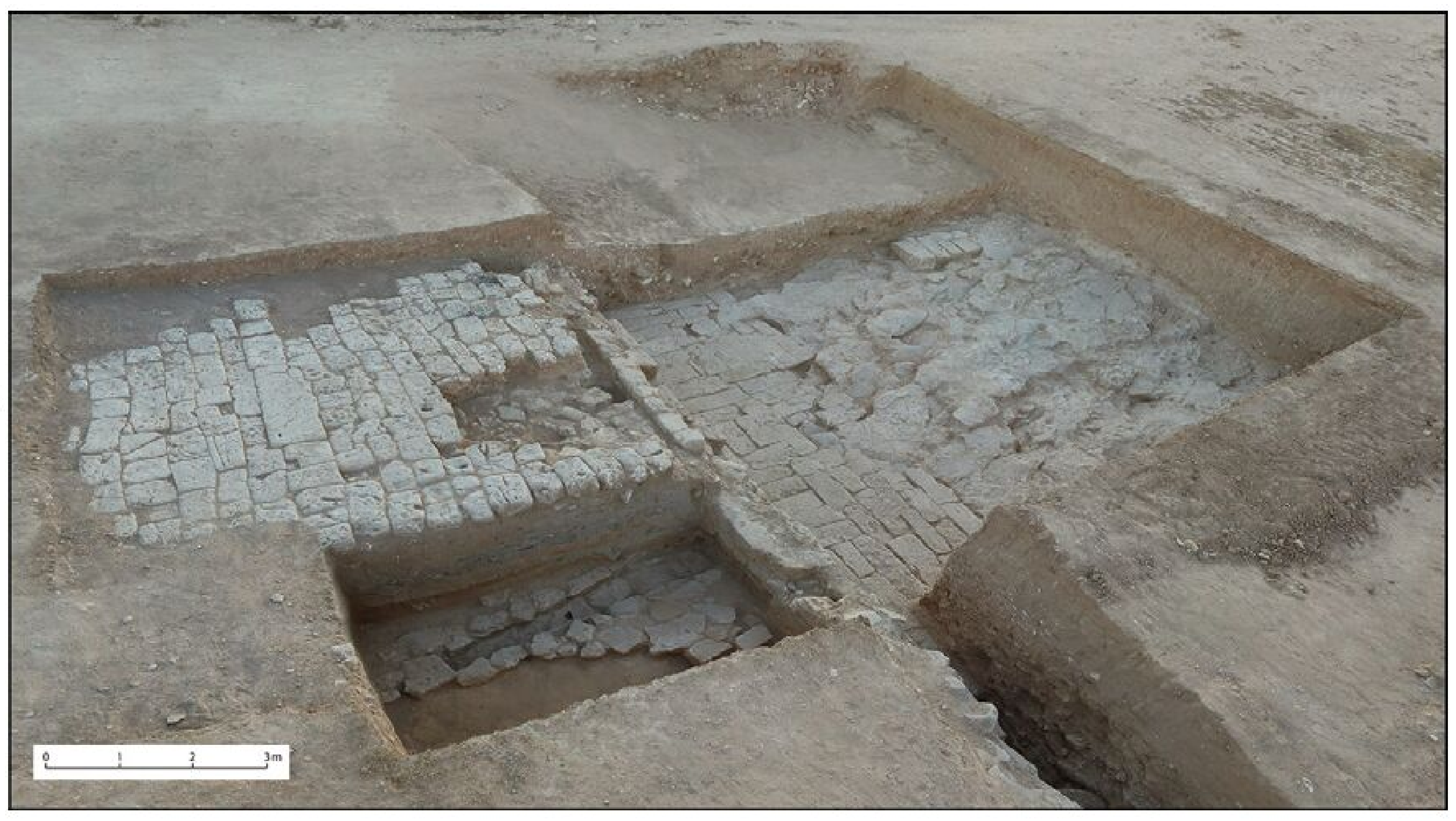

Plinthine - Sector 7
Kom el-Nugus - كوم النجوس
Seasons 2019-2023
Simplified archaeological plan - trenches 5 & 9
S. Dhennin, P. François, C. Somaglino, M. Vanpeene, C. Venton
N
0
1
2
3 m
HELLENISTIC TEMPLE FOUNDATION
STREET
HELLENISTIC RETAINING WALL
HELLENISTIC PIT
COLLECTOR
STREET
HELLENISTIC PIT
729
714
715
702
701
712a
712b
713
739
712
738
737
735
741
724
734
721
720
742
Wall of NK phase 1
Wall of NK phase 2a
Added walls of NK phases 2b+2c
Wall of NK phase 3

***Left:* General plan of the excavation**

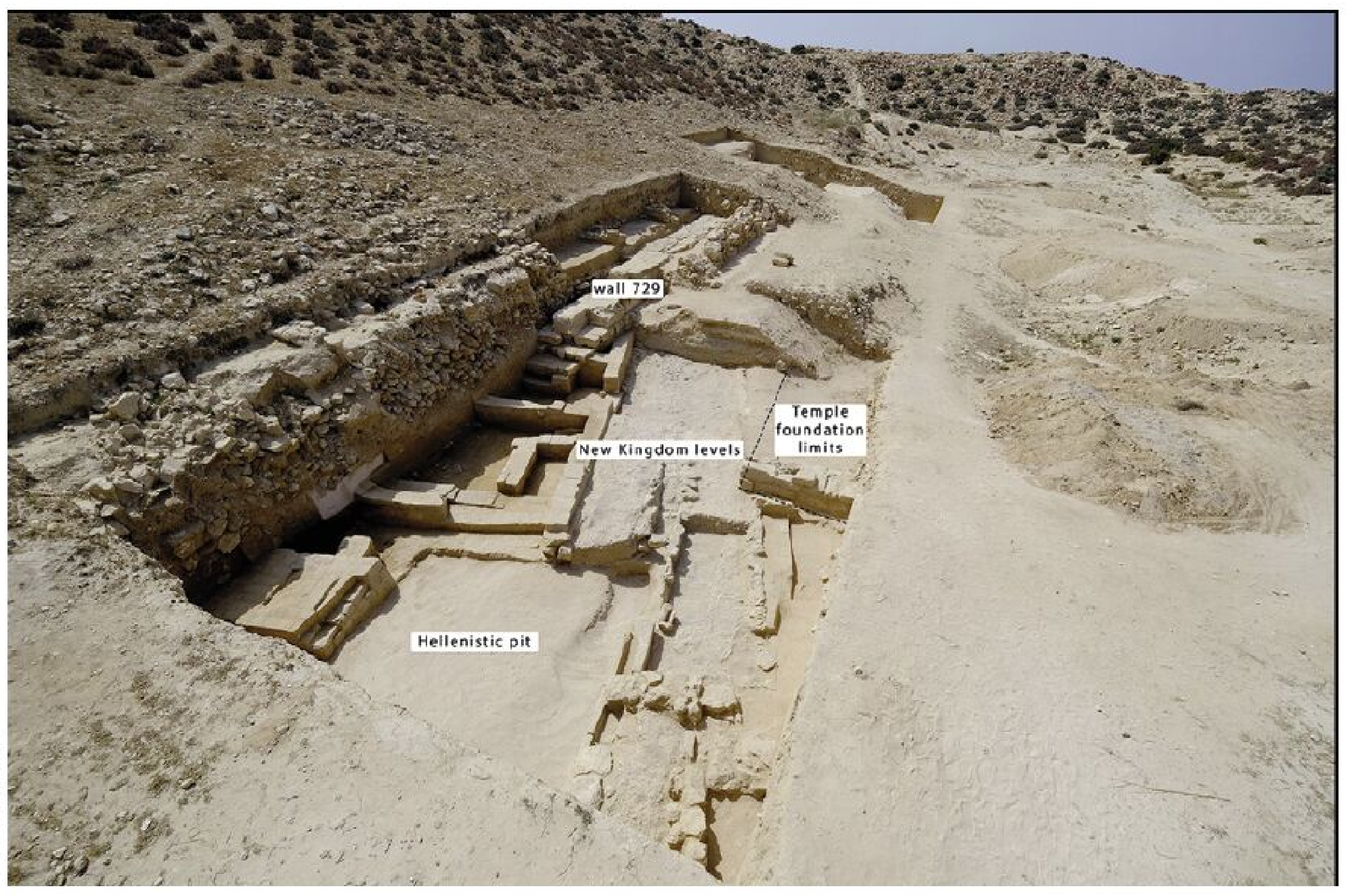

Plinthine
(Kom el-Nogous - كوم النجوس)

***Left:* General plan and location of Kom el-Nugus**

DHENNIN, FRANÇOIS, SOMAGLINO, VANPEENE, VENTON; MISSION FRANÇAISE DE TAPOSIRIS MAGNA PLINTHINE [2]



POLLIN/INSTITUT FRANÇAIS D'ARCHÉOLOGIE ORIENTALE


wall 729
Temple foundation limits
New Kingdom levels
Hellenistic pit

DHENNIN

***Top:* The temple area, viewed from the southeast**
***Above:* General view of the New Kingdom settlement from the southeast**

For more on the stories in this edition's The world in antiquity, visit https://antiquity.ac.uk. Antiquity is published six times a year

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A REVIEW OF WORLD ARCHAEOLOGY
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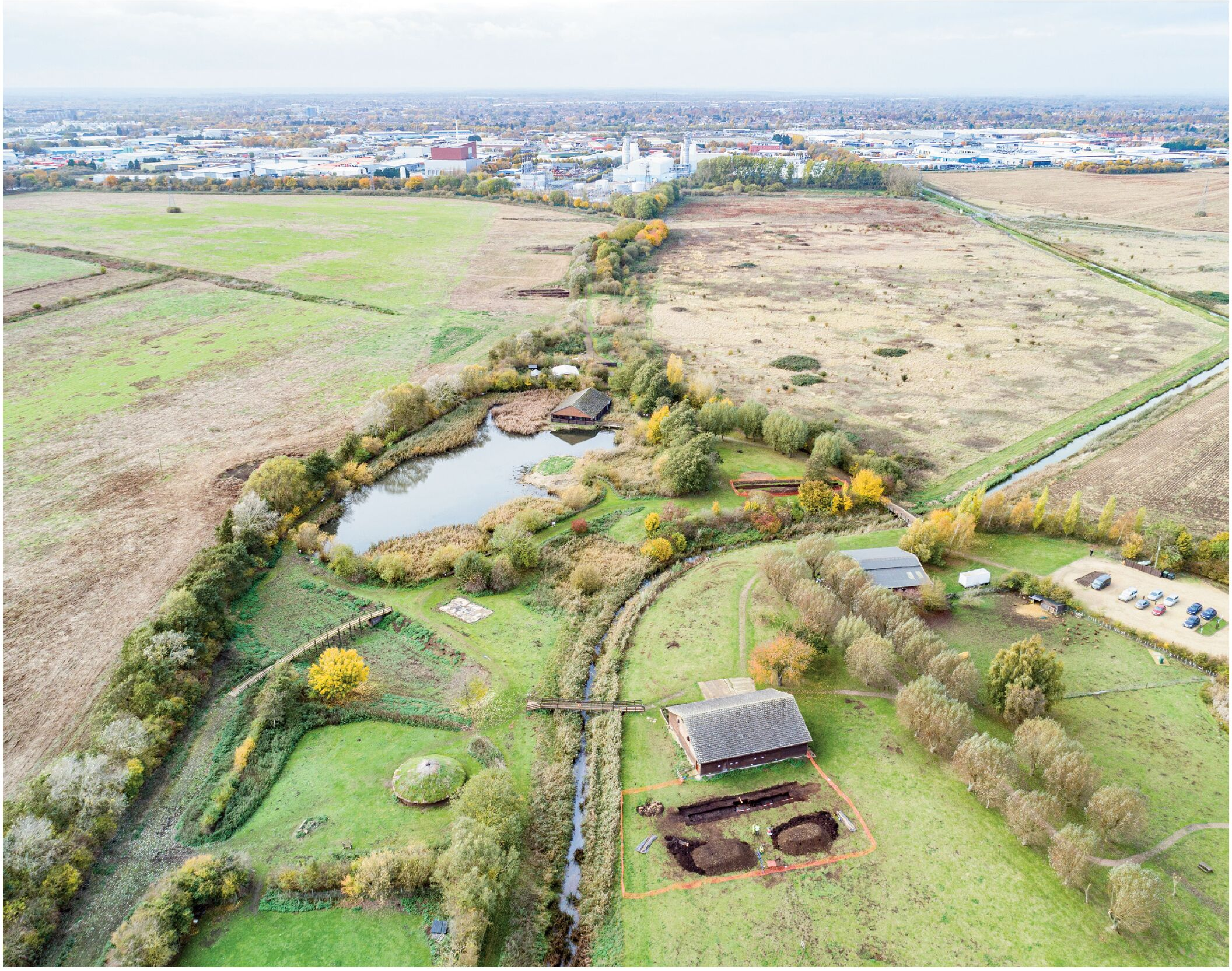
The fall and rise of Flag Fen



Forty-three years have passed since Flag Fen was discovered, and over the years various excavations have offered us a tantalising glimpse of Bronze Age life when the Fens were once engulfed with water. Here, for the Flag Fen Futures group, Matt Brudenell and Mark Knight make clear both the peril and the promise facing one of Britain's greatest sites.

Above: Aerial view of Flag Fen Archaeology Park. Condition assessment Trench 4 in the foreground. Peterborough and the power station in the background

The timbers forming the internationally significant Flag Fen post alignment are degrading and there is now a risk of catastrophic loss to the preserved archaeology.

Flag Fen is the largest known wooden prehistoric structure in the UK. Yet, the kilometre-long alignment and its enigmatic platform have only ever been partially investigated. The 'Flag Fen Futures' workshop held in Cambridge, October 2024, concluded in resounding agreement: Time is fast running out if we want to properly understand this truly remarkable monument and its extraordinary history of deposition.

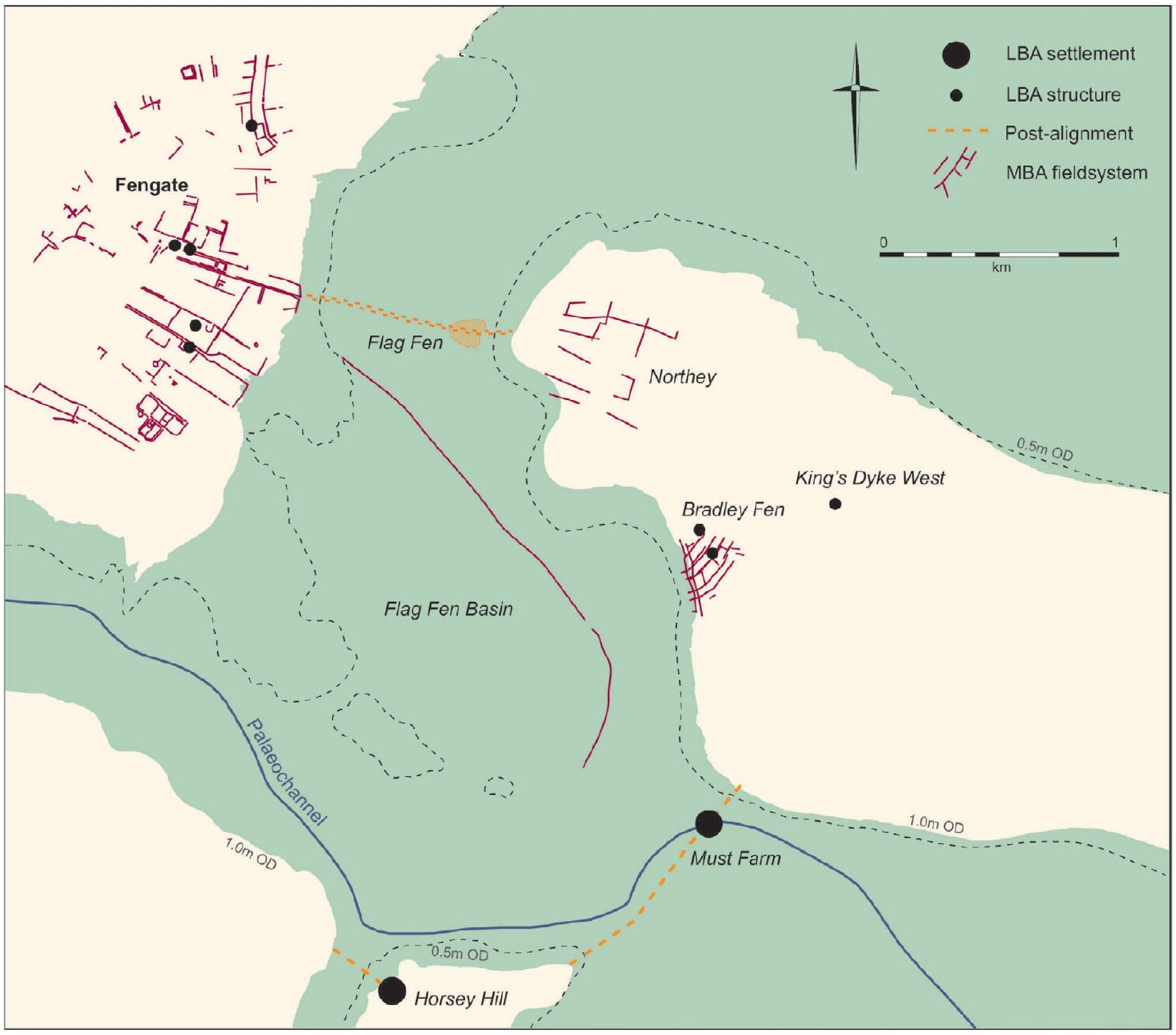
Flag Fen is one of Britain's foremost Bronze Age monuments and the largest wooden prehistoric structure in the country. The monument incorporates a 1.1km-long and 10m-wide post alignment, made up of at least five parallel rows of posts, and a platform, comprising a widespread, multi-layered distribution of horizontal timbers approximately two hectares in size.

The post alignment spans the northern neck of the Flag Fen Basin and involves an estimated 22,000 axe-sharpened posts or piles. The platform is located towards the eastern end of the post alignment and coincides with the deepest part of the Flag Fen Basin. Both elements were constructed shortly after 1300 BC, as the basin became progressively more waterlogged, and both were added to over a period of 400 years.

Since its discovery in 1982, excavations at the site, led by Francis Pryor, have captured the imagination of the archaeological community and wider public alike. The story of Flag Fen has shifted and evolved alongside its history of investigation. The initial interpretation of Flag Fen as a timber platform settlement site, with rows of posts belonging to a three aisled house, was reinterpreted as a series of closely spaced parallel barriers or boundaries flanked and woven by a succession of timber walkways.

Throughout, the easterly platform has remained enigmatic, punctuated by open pools of water and defined by a 'revetted' perimeter walkway.

Complementing the preserved wooden architecture, Flag Fen has yielded a breath-taking array of finds,



Above: The Flag Fen Basin showing key later Bronze Age sites and landscape features

Right: Francis Pryor and Maisie Taylor standing on the causeway reconstruction at Flag Fen Archaeology Park

EMMA BOTHAMLY

Below: Condition assessment Trench 2, wood recording

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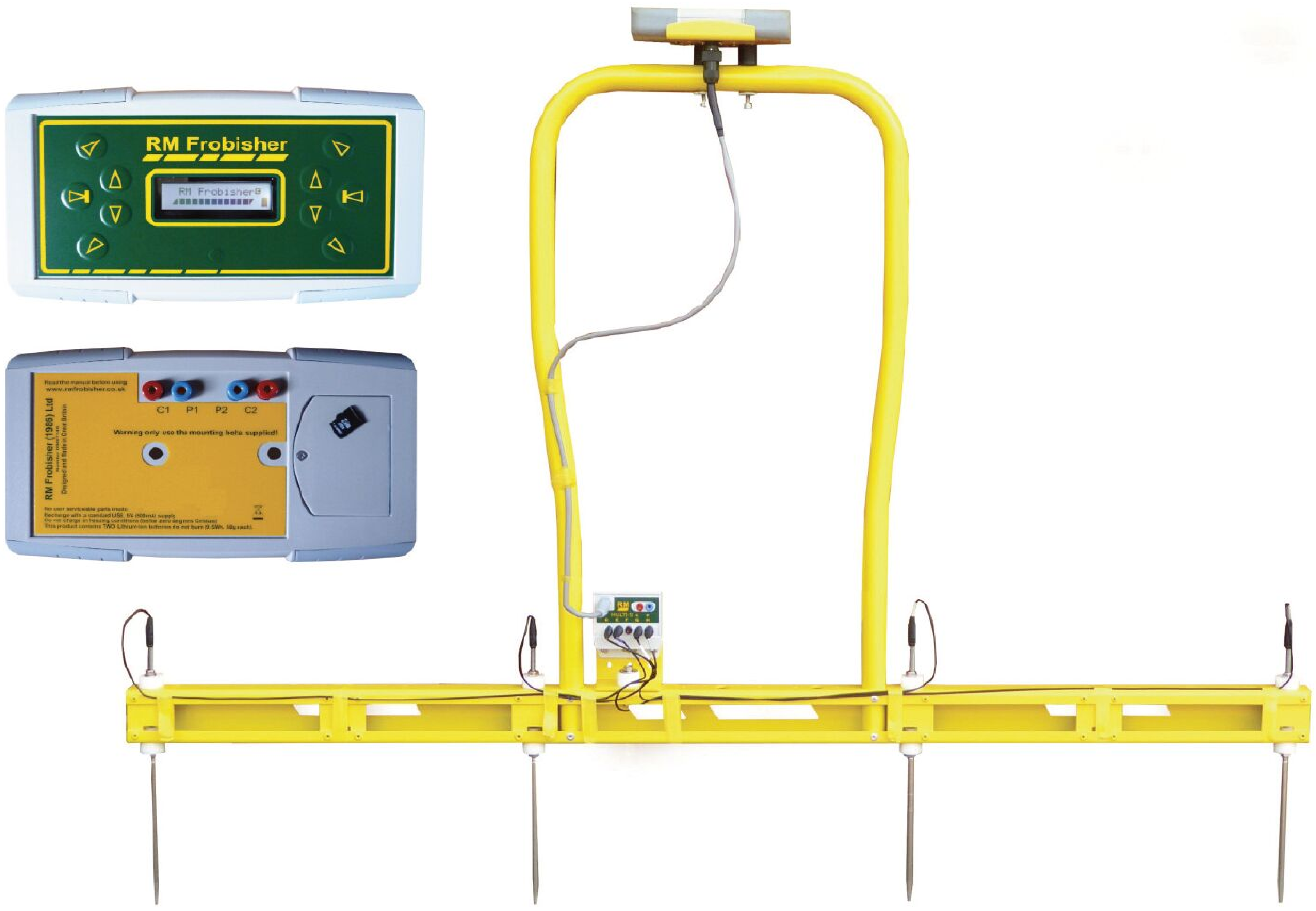

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including over 100 bronze weapons and tools (rapiers, swords, spears, axes, gouges, razors, awls etc.), wooden artefacts (axe hafts, an axle, a wheel), whole quern stones, pottery and disarticulated human bone.

Deposition of these items coincided largely with the 'use' of the post-alignment and platform, thought to represent purposeful offerings associated with the monument's increasingly watery setting, adding to the idea that Flag Fen was a special place.

A site understood?

Given Flag Fen's prominence in British prehistory, both academically and in the public consciousness, it might be assumed that the site has been comprehensively examined.

However, this is far from the case. Despite there being nearly 40, mainly small trench-based investigations over the last four decades only 5% of the monument has been explored in full archaeological detail. Given this, and the site's long history and complexity, it is clear that Flag Fen is far from being fully understood and reliably interpreted. Many questions remain of the site, not only relating to its chronology, architecture, and use, but also to its wider place and significance within the Flag Fen Basin and beyond.

In 2015, Flag Fen's status as the standout monument of the Flag Fen Basin was challenged by the comprehensive excavation of the Must Farm pile-dwelling settlement, which also included an earlier post alignment and demonstrated that impressive pile-built architecture was part and parcel of a much broader response to the drowning of this landscape in the Middle Bronze Age.

The discovery of two more post alignments crossing the southeastern mouth of the Flag Fen Basin at Horsey Bridge further illustrated the flurry of response to rising groundwater. Furthermore, numerous excavations, in

Reinvigorating Flag Fen: How live archaeology can spark new interest

by Jacqueline Mooney - general manager at Flag Fen Archaeology Park

Flag Fen Archaeology Park was once a vibrant hub where the deep past came alive before visitors' eyes. Experimental archaeology thrived throughout the site, and Flag Fen stood as a source of local pride, playing a key role in the region's tourism economy. Media attention surged when *Time Team* visited and adopted a flint arrowhead from Flag Fen into its logo. However, as the years passed, excavations ceased, and the discovery of a prehistoric pile-dwelling settlement at Must Farm Quarry – just a couple of miles away – captured the public's imagination by earning the nickname 'Britain's Pompeii'. Even book titles referring to Flag Fen as 'the death of a prehistoric landscape' did little to inspire renewed visitor interest. After all, who wants to visit the death of something?

DAVID SAVORY

Flag Fen Bronze Age roundhouse interior

Yet the notion that archaeology is strictly for academics or TV personalities is quickly dispelled by the thousands of schoolchildren who visit Flag Fen each year. Their excitement – "That was the best day ever!" or "I'm going to bring my mum and dad back here this weekend!" – speaks volumes. They don't just learn about the past; they roll up their sleeves and live it. Children weave wattle and daub walls, shape their own clay pots, listen to Boudica's story around a fire in a reconstructed roundhouse, and even create art with crushed berries. This immersive, hands-on approach fosters a lasting connection to history and reminds us of the universal fascination with how our ancestors lived.

Compounding funding challenges have taken their toll on Flag Fen's facilities and programming. Resource shortages have made it difficult to maintain and update interpretive exhibits and invest in crucial conservation efforts. While the Must Farm discoveries drew crucial attention and funding to Fenland's exceptional archaeology, Flag Fen struggled to secure similar support. This shortfall has hindered the park's ability to showcase its full archaeological potential and to preserve its delicate waterlogged timbers – assets unique to this prehistoric Fenland landscape.

Meanwhile, hydrologists and preservation specialists warn that intensive agricultural drainage and a drier climate will inevitably lead to the destruction of Flag Fen's extraordinary, waterlogged remains. As custodians of the park, our challenge is to capture and preserve the site's archaeological value while keeping its spirit alive for visitors. We want Flag Fen to continue telling its story – through research, education, and personal engagement with the ancient past.

Over the next five years, we plan to reveal more of these hidden layers, once again making Flag Fen a bustling site of active archaeology. Live excavations will take place, allowing visitors to learn the craft of archaeology first-hand. Guided tours will offer insights into ongoing discoveries, and immersive displays will bring new interpretations to life. We hope these revitalised experiences will reignite public passion for Flag Fen, attract much-needed funding, and ensure this remarkable prehistoric landscape remains a place where archaeology is for everyone – students, families, and enthusiasts alike.

By embracing the power of live archaeology and confronting the challenges posed by underfunding and environmental threats, Flag Fen can reclaim its status as a cornerstone of local heritage and an inspiring destination for visitors from around the world. The stories waiting to be told are too vital, and too captivating, to be left undiscovered.

and around the basin over the past few decades, have vastly enriched and nuanced interpretations of this landscape's history. For example, the Bradley Fen and Must Farm investigations showed that the deliberate deposition of metalwork and human bone also occurred elsewhere around the basin's foreshores and watercourses, with similar intensity.

This is not to dilute the significance of Flag Fen but to show that its place in the landscape has changed. The monument's scale, longevity, and complexity make it extraordinary, irrespective of the new light thrown on its wider landscape setting.

Given the same level of attention as lavished on Bradley Fen or Must Farm, who knows how our understanding of Flag Fen might shift again?

Right: Base of non-oak pile. Condition assessment Trench 2

Preservation, decay, and tipping points

So, there are many significant questions left to explore at Flag Fen. Yet time is running out to do so. Falling water levels mean the shallower stretches of the monument are no longer waterlogged.

Very soon, large swathes of the post alignment will be in such poor condition that its structural remains will barely be recognisable. Our ability to gain new information from the site's organic components, such as pollen and insect remains, will be largely or wholly lost. And without the site's vital organic remains it will be impossible to comprehend the context of the other extraordinary artefacts associated with it. Understanding Flag Fen relies on the survival of the organic and the inorganic, and the window of opportunity to study these together is rapidly disappearing.

The challenge of preservation looms large in the management history of Flag Fen. The process of drying out has been described, and its implications stressed, since the earliest excavations in the 1980s and was the motivation for the construction of the large mere in 1987.

The plight of the wood was highlighted in 2001, and numerous projects have been carried out to monitor and define the degradation of the wood, via trial trenching, water-table monitoring, and microbial decay analysis. Unfortunately, there are no simple, sustainable or practicable long-term solutions to these issues.

Historic England's Heritage at Risk Register lists Flag Fen as a monument affected by drainage/dewatering and its condition as 'generally unsatisfactory with major localised problems'. It has long been understood that there was a risk of catastrophic loss to the preserved archaeology.

It was against this backdrop that Historic England commissioned a hydrogeological study of the Flag Fen Basin (2016). On the back of this study, it commissioned the Cambridge Archaeological Unit to undertake a

Horsey Hill marshfort and post alignments (2008, 2021)

The higher ground that formed the drier margins of the Flag Fen Basin included the small Fenland 'island' known as Horsey Hill. This teardrop-shaped island bordered the southern edge of the basin and formed part of a land-bridge between Stanground, Peterborough, and the much larger fen 'island' of Whittlesey.

Two separate archaeological evaluations led to the discovery of a now submerged later Bronze Age hillfort or marshfort and a series of causeways joining the island to the 'mainland'.

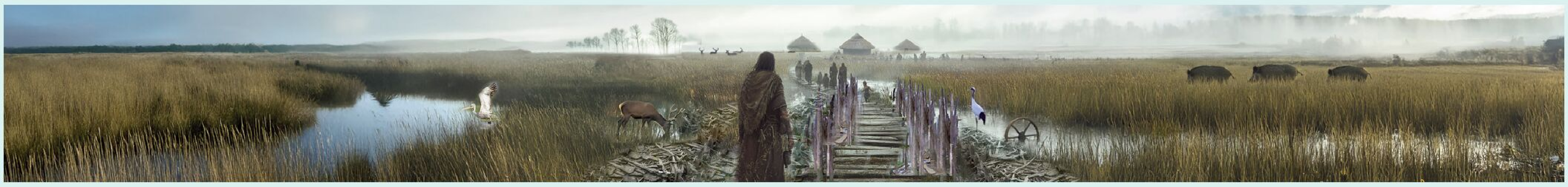
The Horsey Hill marshfort was approximately 30 hectares in area (almost as large as Maiden Castle) and situated at 1m above sea level (making it Britain's lowest known hillfort).

A massive ditch and rampart encircled the island and very limited excavation of its interior revealed evidence of settlement. Timber causeways were situated at both ends of the island: at Must Farm (east) and Horsey Bridge (west).

The Must Farm causeway pre-dated the Must Farm pile-dwelling settlement, whereas at Horsey Bridge three different causeways have been identified, one dating to the later Bronze Age, one to the Late Iron Age and a stone-built crossing dating to the Roman period.

Later Bronze Age post alignment at Horsey Hill

Flag Fen (1982-2021)



NATHAN MURDOCH

Flag Fen reconstruction by illustrator Nathan Murdoch

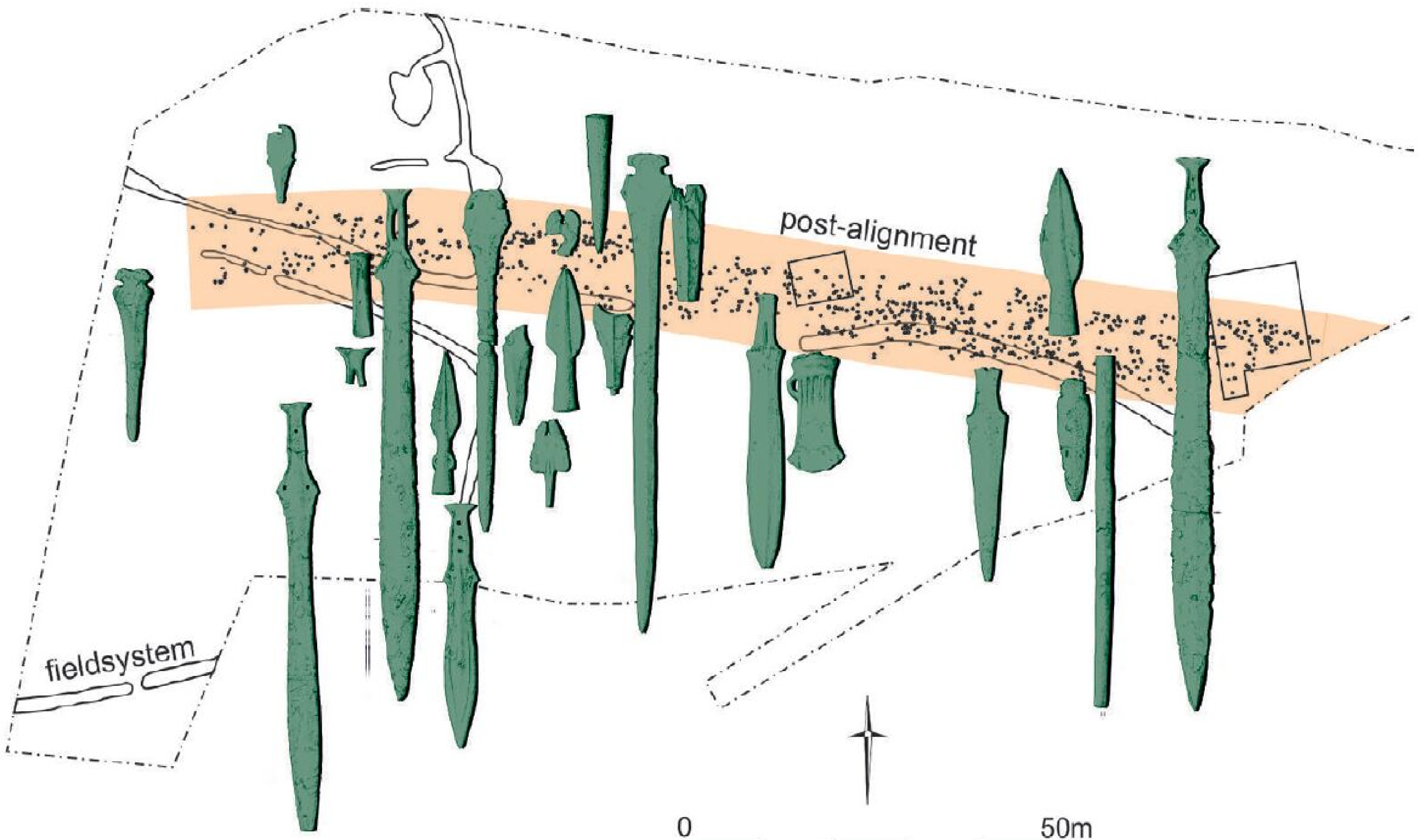
Fenland's foremost prehistoric monument is undoubtedly, Flag Fen. Thousands of upright posts together with layers and layers of horizontal wood survive beneath the peat, indicating the location of a giant timber causeway that spanned a small fen embayment on the western edge of the fens in the Bronze Age. The first excavations of this site revealed a mass of wood, including rows of posts and spreads of timbers and brushwood that formed part of an artificial island. Unlike conventional dry-land sites, the archaeology at Flag Fen was waterlogged and made up mostly of organic remains.

Many of its associated artefacts were also made of wood (axe hafts, a wheel, an axle, a ladle). The exceptional nature of the archaeology was further heightened by the presence of hundreds of pieces of bronze metalwork including rapiers, swords, and spears. The combination of rows and rows of standing posts in a wetland setting together with many bronze weapons has led to Flag Fen being interpreted as a ritual monument associated principally with religious activity.

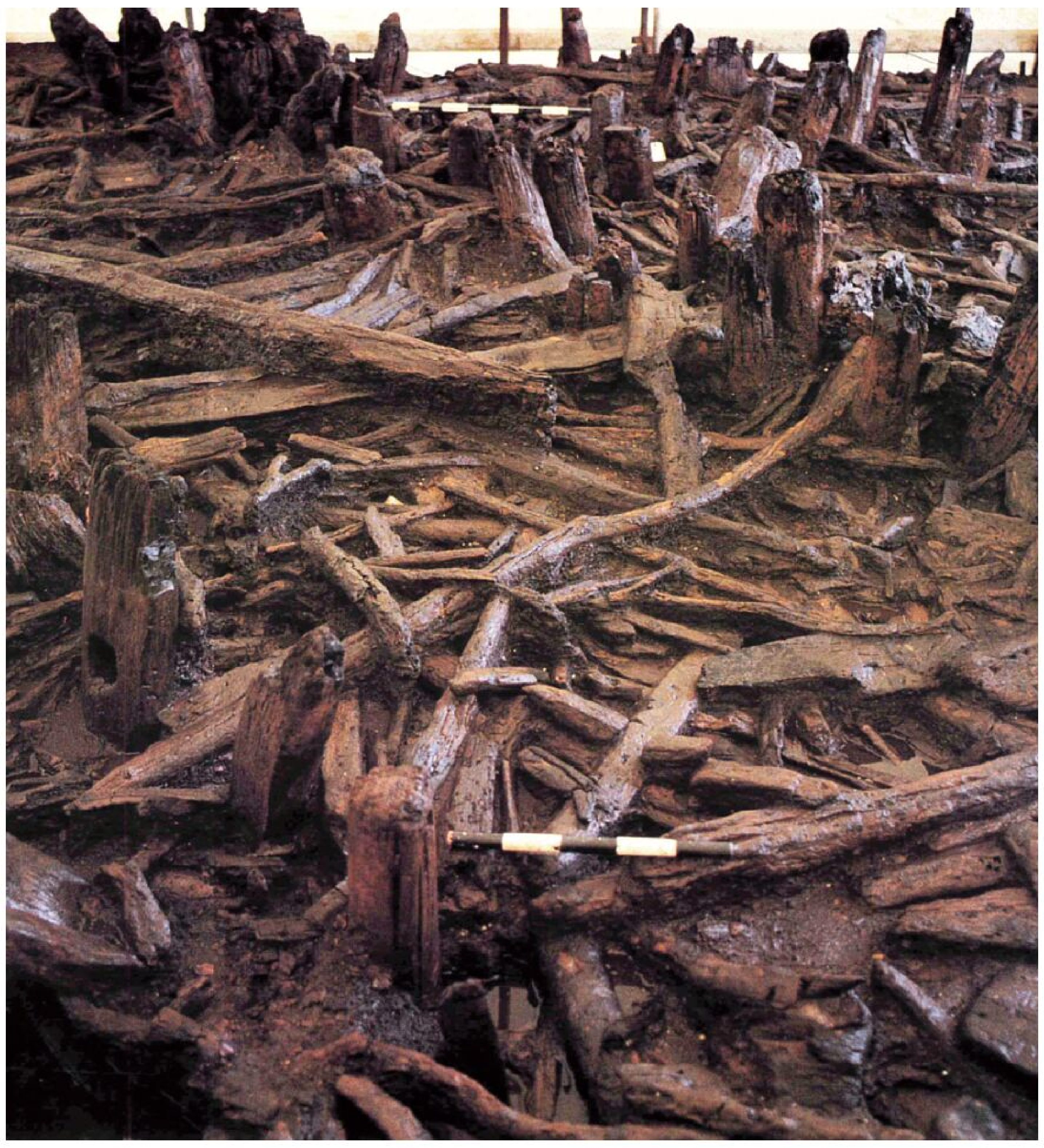
desk-based review and conservation assessment (2020), followed by an archaeological condition assessment (2021). All three projects were designed to help Historic England develop a management plan for the site.

The 2021 assessment involved five trenches and one 'off-site' environmental test-pit. Three trenches were opened over the post alignment and two above the platform. The former exposed three 1.4m wide transects across the rows of posts and top of the associated horizontal wood mass. One was excavated to its base, revealing an earlier land surface and enabling a comprehensive assessment of the worked wood and related deposits. The latter sought to determine the northern and southern limits of the monument.

Right: Flag Fen Power Station investigation 1989 Later Bronze Age metalwork in relation to the fieldsystem and post alignment



Below: Flag Fen post alignment Area 6 1987



FENLAND ARCHAEOLOGICAL TRUST [2]

This investigation revealed very different levels of preservation along the monument. The platform trenches, and one targeting the post alignment to the east, revealed sediments that were deep, wet and unoxidized – optimal conditions to keep the organic remains preserved in situ. However, conditions in the westernmost post alignment trenches were markedly different.

Alarmingly, these uncovered desiccated and oxidized sediments characterised by fissures and voids as well as masses of invasive nettle roots. The condition of the worked wood here was deemed poor or very poor and demonstrably worse than anything previously recorded.

Reactions to the wood condition were palpable in the gasps made by visitors to the excavations, including Francis Pryor and Maisie Taylor, the two archaeologists most qualified to judge the changing state of the monument. The turn of phrase uttered by Francis was succinct and unprintable, but at that very moment summed up perfectly the dire situation of the once waterlogged archaeology.

Analyses of plant remains, pollen, and insects completed a gloomy forecast, revealing an equivalent decline of preservation and ongoing downward trend. The implications were apparent and painfully clear: Flag Fen is in decline. The western half of the post alignment is sitting at the very limits of meaningful preservation and large areas of the monument are close to the tipping point. Full, in situ preservation of the entire site is no longer a viable option for long-term management, so what do we do?

Hope: new details versus old assumptions

On a more optimistic note, all is not yet lost. The 2021 assessment proved that much of the timber in the increasingly desiccated areas still retained some semblance of its original form, including vital woodworking evidence.

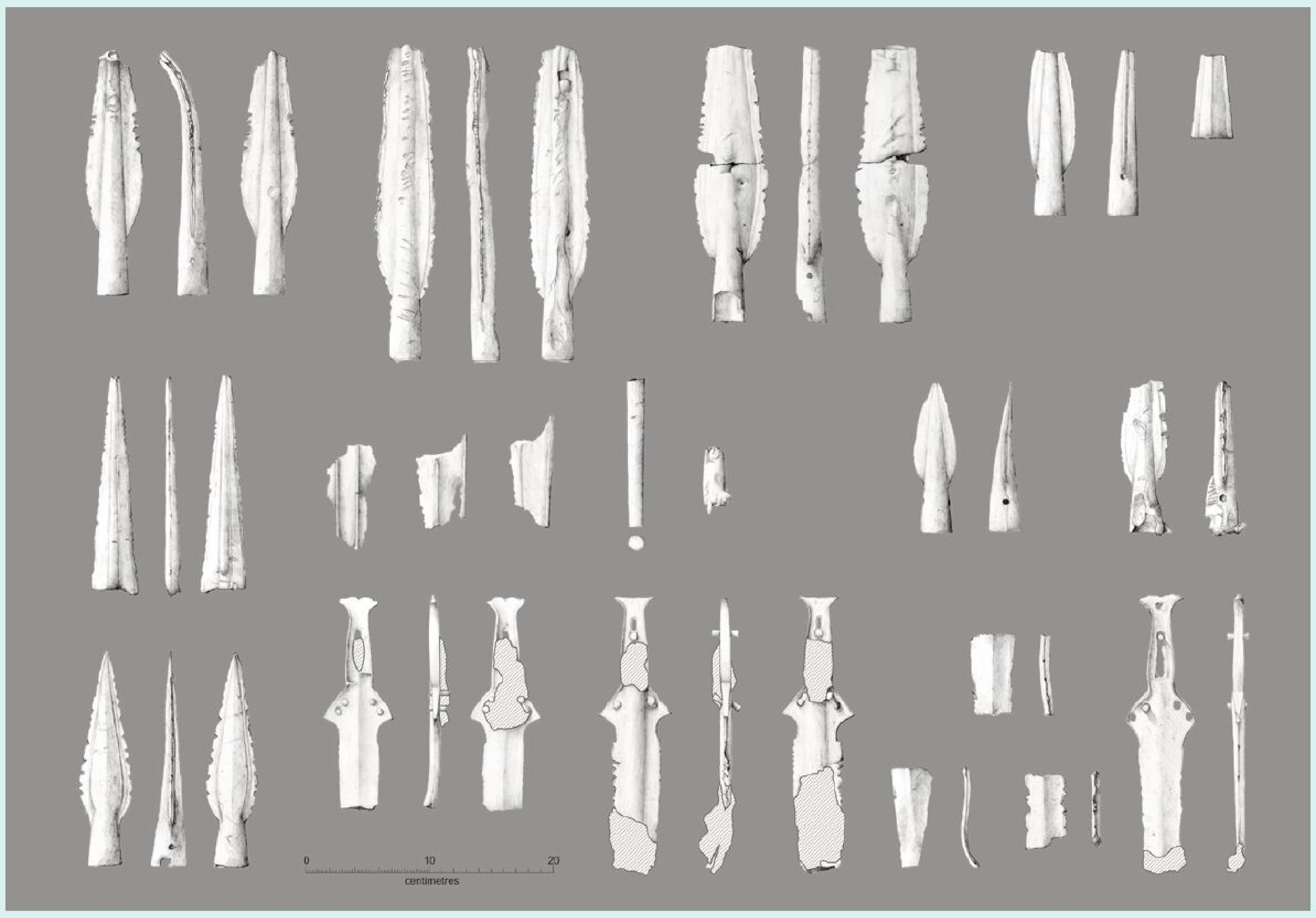
Dendrochronology could still, just, be used to produce fresh dates and new interpretive detail, including the identification of posts made from the same tree. These 'paired' posts were situated across the different rows of the post alignment, challenging the long-held notion of a 'five row model'. The investigations also hinted at a possible sixth alignment in one trench, as well as groups of vertical or angled stakes, suggesting the presence of a more complex archaeological sequence.

Further fresh details prompted a re-evaluation of previous interpretations of the post alignment. The jumbled debris of horizontal timbers, roundwood and woodchips did not look like built walkways, as inferred in earlier excavations, but instead an accumulation of construction debris and fallen elements from superstructures. One trench also provided a glimpse of the wooded landscape that existed before the onset of waterlogged conditions and the building of the monument, with the discovery of two oak tree stumps.

Fresh questions and fresh approaches

The preservation conditions at Flag Fen are rightly ringing alarm bells. Yet,

Bradley Fen (2001-2004)



CAMBRIDGE ARCHAEOLOGICAL UNIT

The Bradley Fen hoard

Located along the eastern margins of the Flag Fen Basin, the Bradley Fen investigations uncovered large tracts of a Middle Bronze Age field system created about 1500 BC.

The deeper parts of the field system were swamped by peat around 1300 BC and shortly afterwards, bronze weapons were deposited along its now submerged boundaries. Six hafted spears and a single weapon hoard of 20 items were distributed along 150m of the basin-edge.

The hoard comprised whole and broken swords, spears, chapes, and ferrules, and include pieces that had very evidently been bent, notched, gashed, perforated, dented, burred and burnt.

Below: Exposing the horizontal wood mass

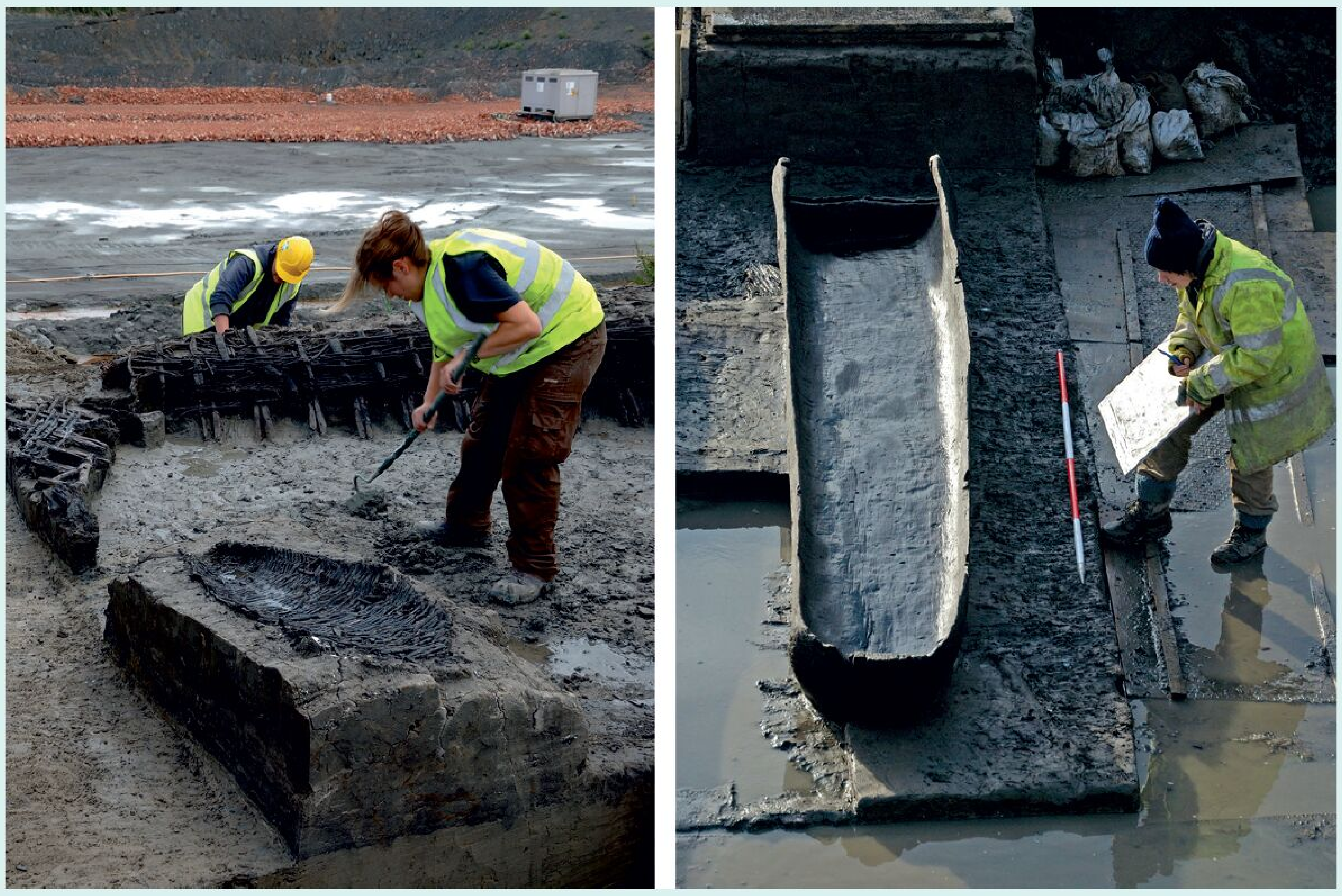
equally, the trenches excavated in 2021 generated exciting new observations that highlight the importance of further work that can invite a major rethinking of what Flag Fen is.

The existing assumptions at the site would benefit from fresh work and study, but answers to fresh questions will not be found in the 5% of the site that has been investigated to date or in more small-scale trenches. To understand Flag Fen a bold new approach is needed with questions exploring the gaps in our knowledge.

- Context and setting: What was the contemporary environmental and topographic context of Flag Fen; which parts of its basin became wet first, and when?
- Extent: What was the extent of Flag Fen's horizontal wood mass, and what was its relationship to the post alignment and platform? Where are the monument's true edges?
- Chronology and duration: When did the construction of Flag Fen start and stop? Will dating the non-oak component change its chronology? Can we build a finer-grained timeline, that articulates the episodic nature of construction and activity within the overall duration of this long-lived wooden edifice?
- Deposition: How frequent was deposition at Flag Fen? What was the

Above: Desiccated and oxidised mortised timber

Must Farm palaeochannel (2009-2012)



FENLAND ARCHAEOLOGICAL TRUST [2]

Bronze Age log boats under excavation at Must Farm

The Must Farm palaeochannel investigations involved the excavation of 320m of a silted-up tributary of the Bronze Age River Nene. The small river channel crossed the southern margins of the Flag Fen Basin, was up to 30m wide, 4m deep, and dated to 1600 BC at its base and 100 BC at its top.

The river silts preserved nine log boats, 10 fish weirs, and 24 eel traps. The weirs and traps occurred at regular intervals along its bottom, whereas the log boats were found throughout its lower profile and included craft dated to the Bronze Age and the Iron Age.

The steady accumulation of river silt also captured moments of deposition, including pieces of Bronze Age and Iron Age metalwork (hafted spears and swords with preserved wooden handles) as well as disarticulated human bone.

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The Roman Theatre at Taormina, Louise-Joséphine Sarazin de Belmont, 1828. Public domain via The National Gallery of Art, Washington.

Left: Exposure of lower wood layer

scope and chronology of the different depositional practices?

- Appearance: What did Flag Fen really look like? Did its appearance change over time? Can we draw a blueprint for Flag Fen?
- Landscape relationship: How did Flag Fen relate to the other post alignments in the basin? What role did it play in relation to changing settlement patterns during the later Bronze Age and early Iron Age?

The time is now

The risks to Flag Fen are not unique. The threats posed by climate change impacts and dewatering are familiar to many, if not all, wetland prehistoric sites in Europe. Hard decisions will need to made about what to do with these sites and to establish when preservation in situ becomes unsustainable.

The outlook is admittedly bleak, but sites of exceptional significance, such as Flag Fen, rich in both organic and inorganic remains, must be a priority for action. Flag Fen commands a place in so many narratives of prehistory, and the work that takes place here sets the bar for practical approaches to wetland archaeology and its future management.

The basis for further work at Flag Fen now could not be clearer. The site is deteriorating and there are pressing research questions which need to be addressed before critical detail is lost forever.

These exact sentiments stood out at the 'Flag Fen Futures' workshop held in October 2024 at the McDonald Institute for Archaeological Research, University of Cambridge, which gathered together a national quorum of wetland experts together with many local 'stakeholders' to reflect on the results of the latest condition assessments and to build a consensus as to what should happen next.

The ongoing deterioration of the monument was discussed, together with the knowledge that the site still holds an abundance of fresh, interpretive information. The response from the room was unanimous and unambiguous: the clock is ticking. For the driest parts of the monument, particularly the western stretch of the alignment, swift excavation at scale is the only appropriate action.

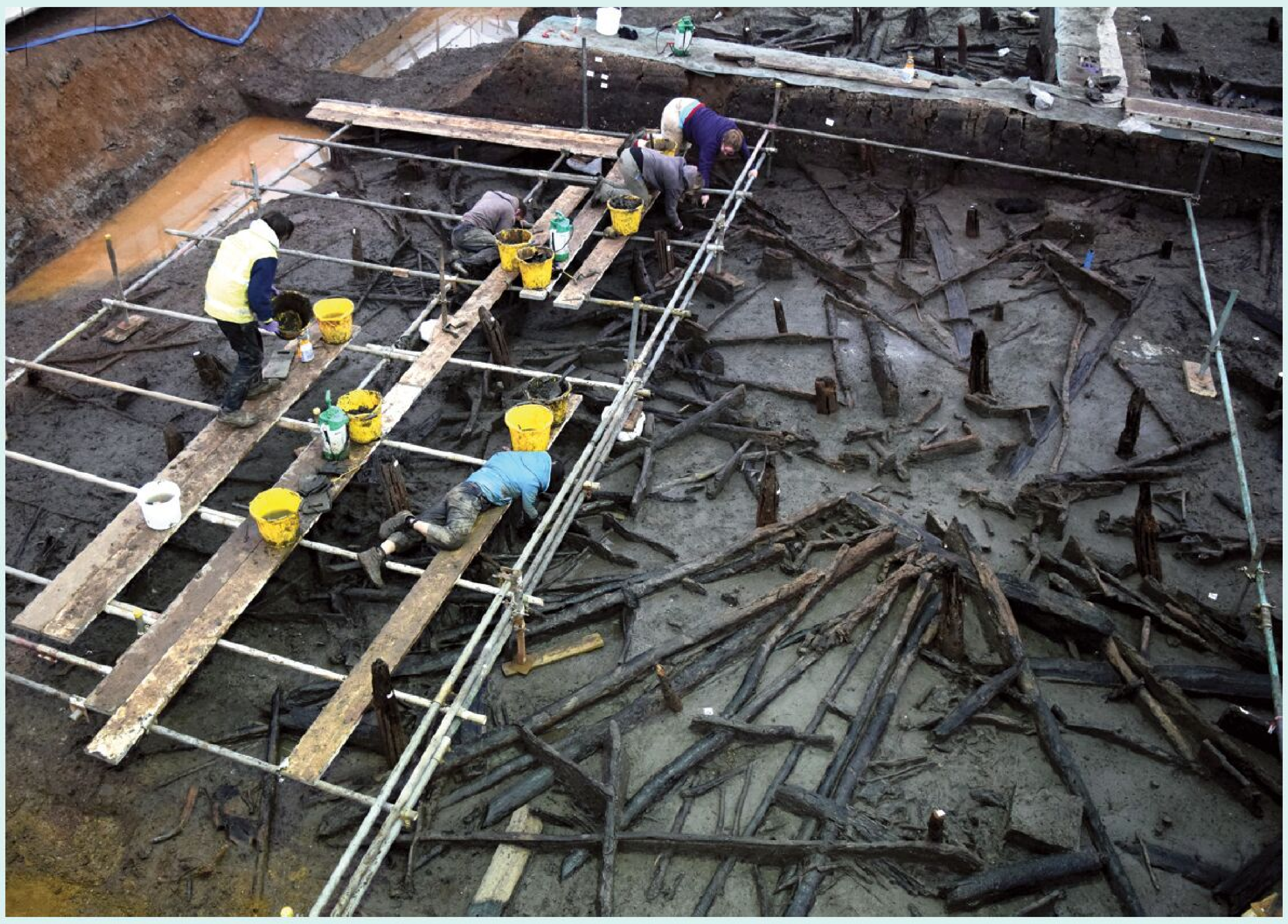
Rivalling the disappearing archaeological information at Flag Fen is the loss of knowledge, skills, and experience. As the archaeological pioneers of the ground-breaking wetland excavations at Flag Fen and similar prehistoric projects are nearing the end of their careers, there is an urgent need to find and train the next generation.

Newly tried and tested methodologies, tailored to the excavation of mass wood archaeology at Must Farm, can be learnt and harnessed to deliver an efficiency and expediency at Flag Fen that maximises its surviving contextual detail.

Yet, like the preservation of the site itself, transmitting these skills is time, critical and must be passed on while this knowledge still exists. For Flag Fen and, potentially, for wetland prehistoric archaeology, time is nearly up.

The Flag Fen Futures Group is made up of representatives from Historic England, Flag Fen Archaeology Park, Cambridge Archaeological Unit, McDonald Institute for Archaeological Research, University of Cambridge, and Anglian Water. The mutual goal being the best future for Flag Fen. ■

Must Farm pile-dwelling settlement (2015-16)



Must Farm pile-dwelling settlement – exposure of the roof timbers of Structure 1

CAMBRIDGE ARCHAEOLOGICAL UNIT

A short distance downstream from the palaeochannel investigations, the same river silts preserved the charred and collapsed remains of a Late Bronze Age settlement comprising at least five stilted roundhouses and enclosed within a palisade. Dendrochronology and the site's limited stratigraphy showed that the settlement was built, occupied, and destroyed by fire within a single year (c850 BC), and its unplanned abandonment ensured the contents of whole households were lost to the riverbed.

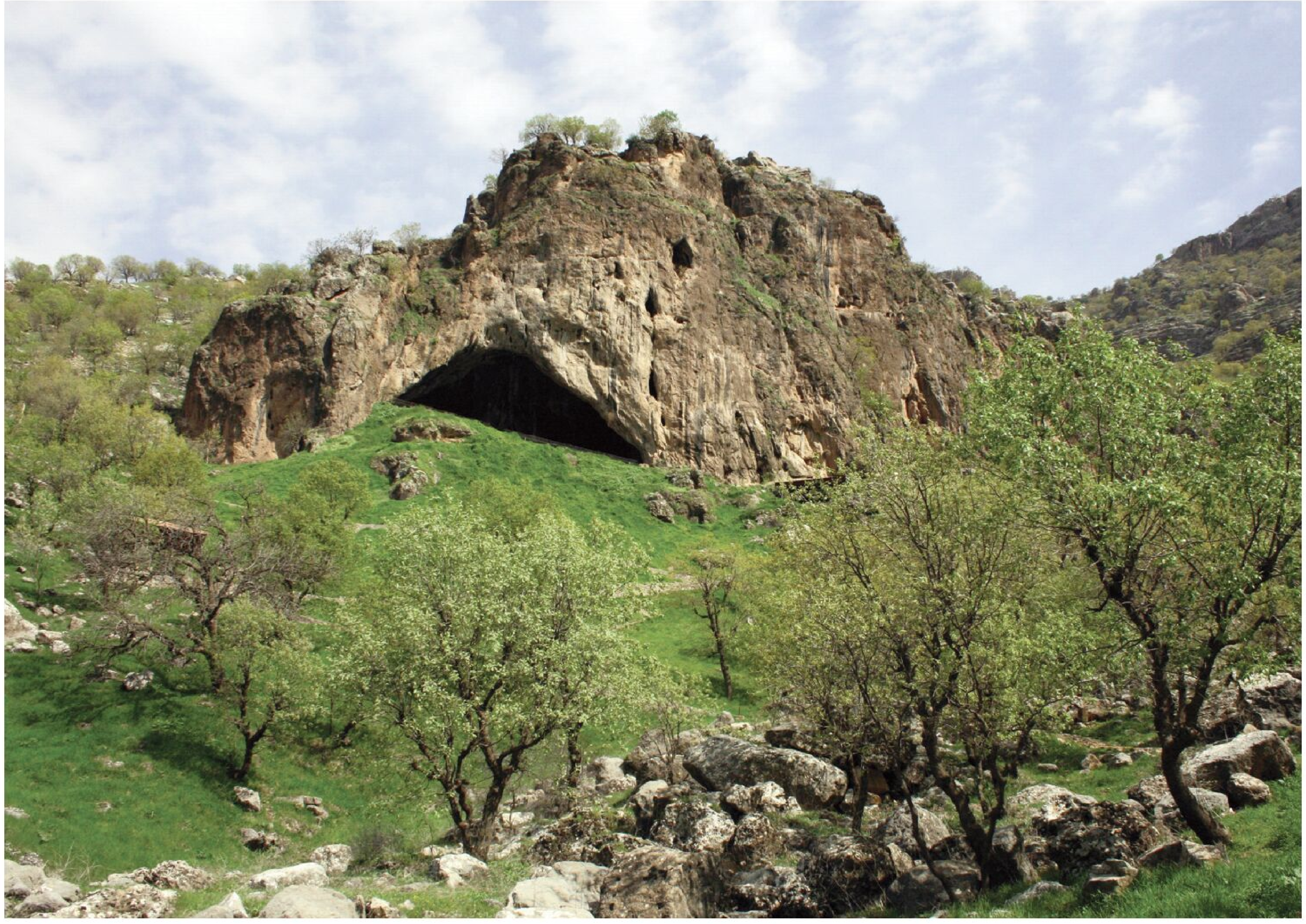
Individual roundhouse inventories included pottery sets (storage jars, bowls, and cups), toolkits (axes, chisels, gouges, razors), buckets, troughs and platters, bobbins, quernstones and loomweights.

The insides of pots retained evidence of past meals (honey and venison, meaty porridge or pottage) and the household middens incorporated food waste (the butchered bones of red deer, wild boar, pig and pike), and coprolites (human and dog). For the very first time, the roofs, walls, and floors of roundhouses were preserved, enabling unprecedented insight into Bronze Age domestic architecture.

Being human:

Neanderthal encounters at Shanidar Cave

When you think of British archaeology, Shanidar Cave in Iraqi Kurdistan is perhaps not the image you would conjure up in your mind. Professor Graeme Barker and Dr Emma Pomeroy reveal how cutting-edge British research has helped us to challenge the perceptions of Neanderthal culture and our ideas of early humanity.



GRAEME BARKER

Above: Shanidar Cave, viewed from the south

You might have read about a fictional partly blind and paralysed Neanderthal shaman in Jean M. Auel's *The Clan of the Cave Bear*. Perhaps you saw a reimagined face of a long-dead Neanderthal on TV, brought to life by Andy Serkis.

Maybe you have heard of the so-called Neanderthal 'Flower Burial', or recent talk of a stone age 'flat bread' recipe. Over the last 10 years, a team led by British archaeologists has been excavating the incredible site of Shanidar Cave, in Iraqi Kurdistan, which inspired these and so many other representations of Neanderthal life over 50,000 years ago.

These interpretations were built on evidence from excavations in the 1950s that first brought the importance of this site to the world's attention, where new discoveries are once again bringing Shanidar Cave to academic and popular prominence.

Shanidar Cave itself is astounding. This immense cave – more like an aircraft hangar than the kind of cave you crawl into – sits near the head of a small gorge in the foothills of the Bradost mountains. These mountains are part of the immense Zagros range stretching from Turkey to the Persian Gulf, en route forming the frontier between Iraq and Iran.

The cave entrance faces south, meaning that much of it is bathed in sunshine through the day and affording it a fabulous view down the gorge to the valley of the Greater Zab River. The cave roof provides a haven for swifts, choughs, nuthatches, owls, and even snakes that crawl along it (somewhat unnervingly for the archaeologists below them) hunting for birds' eggs.

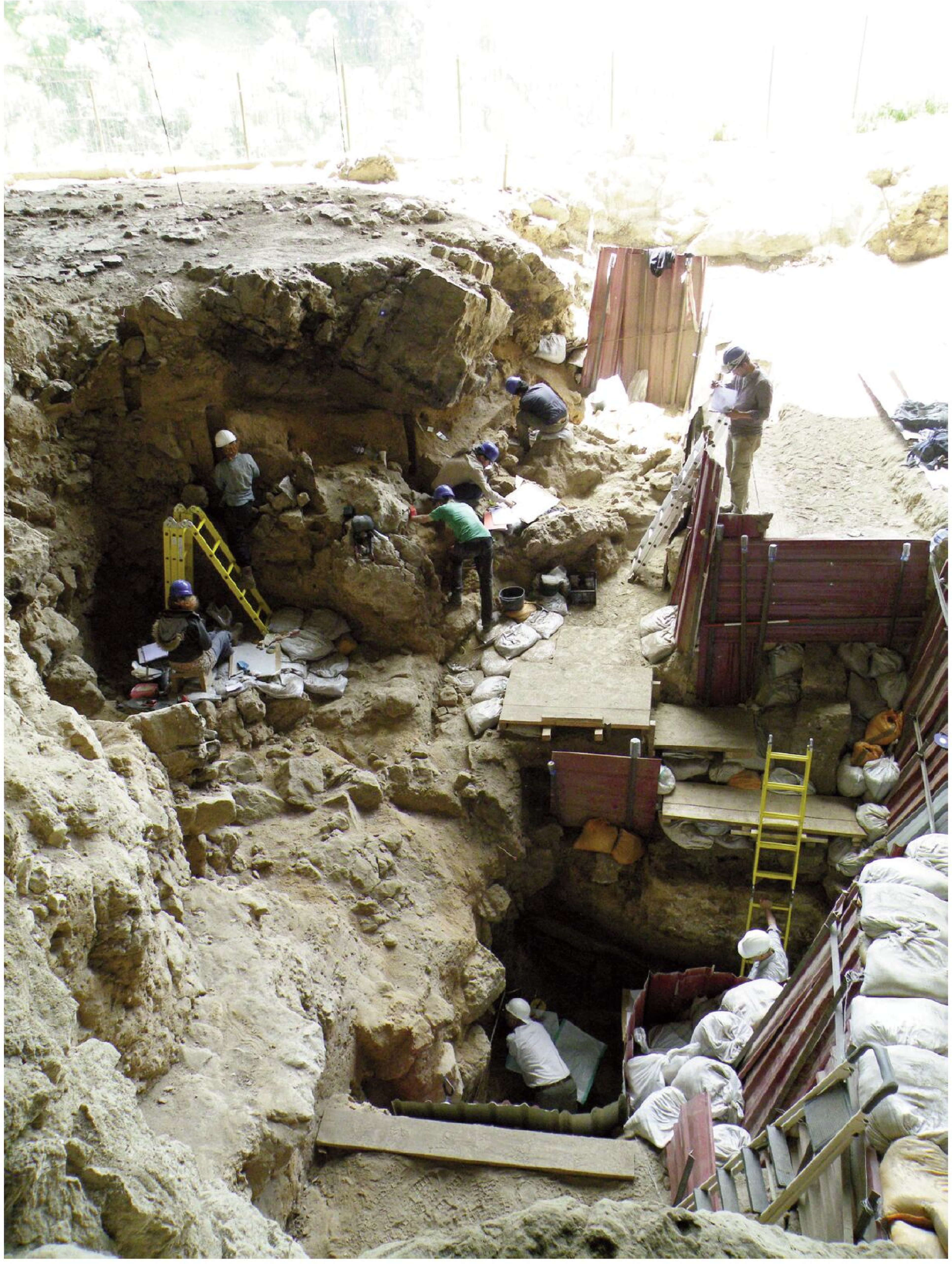
There is a spring at the back of the cave, and we often see the prints of ibex, sometimes jackals, and even wolves that come to drink when we and the tourist visitors have gone. In spring, the hillside is covered with colourful flowers, which helped make this location so famous among archaeologists.

The cave provides shelter for much of the year, and until it and the gorge were fenced off as an archaeological reserve 20 years ago, transhumant shepherds and herders camped in the cave with their flocks and herds from autumn to spring, moving further towards the plains of Mesopotamia in the winter and into the high Zagros in the summer when the countryside around Shanidar Cave is parched yellow in 40 degree heat .

We try to excavate in May, when the winter rains and snows have abated, and the summer heat is still to come. It is the favourite time for Kurdish people to visit the cave, often with members of their extended family who have come back from all over the world, so we are as likely to have questions about what we are up to from a Kurdish barber from Liverpool or a taxi driver from Milwaukee as from a local resident.

They bring enormous lunches to barbecue at picnic shelters below the cave

Right: The Shanidar Cave excavations in 2017. The Project largely re-opened Ralph Solecki's original trench to conduct detailed excavations at the edges that could then be tied into the original excavations



EMMA POMEROY

and wander up to the cave usually in their best Kurdish traditional dress to see what is going on and take selfies, either with the fabulous views or with the fenced excavation trench behind them, or even with us.

Occasionally they play music and perform traditional Kurdish dances, always bringing an energetic and positive vibe to the impressive natural landscape. In between the chatter of visitors is a wonderful orchestra of birdsong, accompanied by swifts wheeling and swooping in the roof of the cave, chough fledglings screeching for food from their nests, and nuthatches bravely flying straight at the snakes to try to dislodge them as they get nearer and nearer to their nests.

Digging in Shanidar Cave is a wonderful assault on all the senses.

Shanidar Cave has been an iconic site for archaeologists interested in the deep past because of the excavations by Ralph Solecki through the 1950s until 1960. At that time a number of foreign archaeological teams were looking for early farming sites in the Near East, not in the Fertile Crescent where the earliest cities had been found and which the prehistorian Gordon Childe had postulated as the likely centre of his 'Neolithic Revolution' but in the 'hilly flanks' around them, in an arc from Jordan and Israel through Turkey and northern Syria and down the Zagros range in Iraq and Iran. Wild cereals and wild sheep and goats were native to these uplands and not to the plains.

One of the major expeditions, led by the American archaeologists Robert Braidwood and Bruce Howe, concentrated on Iraqi Kurdistan, their famous site being the early farming village Jarmo. Ralph Solecki, then based at the Smithsonian Institution in Washington and later at Columbia University with his archaeologist wife Rose, heard about the large cave while on an expedition in the region and thought it sounded like the ideal candidate for a deep excavation, because he was set on finding the much deeper story of life before farming during the Palaeolithic ('Old Stone Age').

When he visited the cave, he could see from its shape that it probably contained a deep 'fill' of sediment below the modern ground surface, and he laid out a big trench north-south from the entrance. The transhumant shepherds were still living in the cave, some of whom he was able to take on as labourers.

Over four seasons between 1951 and 1960 he excavated parts of the trench right down to bedrock 14 metres below the datum he set up at the ground surface. He was extremely tough – he had survived a landmine explosion in Second World War, and some of his American team members dreaded the 'day off' (i.e. Fridays, when no digging took place) because his idea of relaxation was to run up and down the Bradost Mountain – and had to overcome enormous logistical problems every season.

One solution to massive boulders hindering progress downwards was dynamite, and an ingenious solution to not having a good flash camera one season was to get one of his workmen to light a spade full of magnesium at the operative moment.

He divided the occupation sequence he revealed into four main phases, A to D: Phase A, in the top 30-100cm and not very well preserved, was Neolithic occupation layers – more or less contemporary with sites like Jarmo.

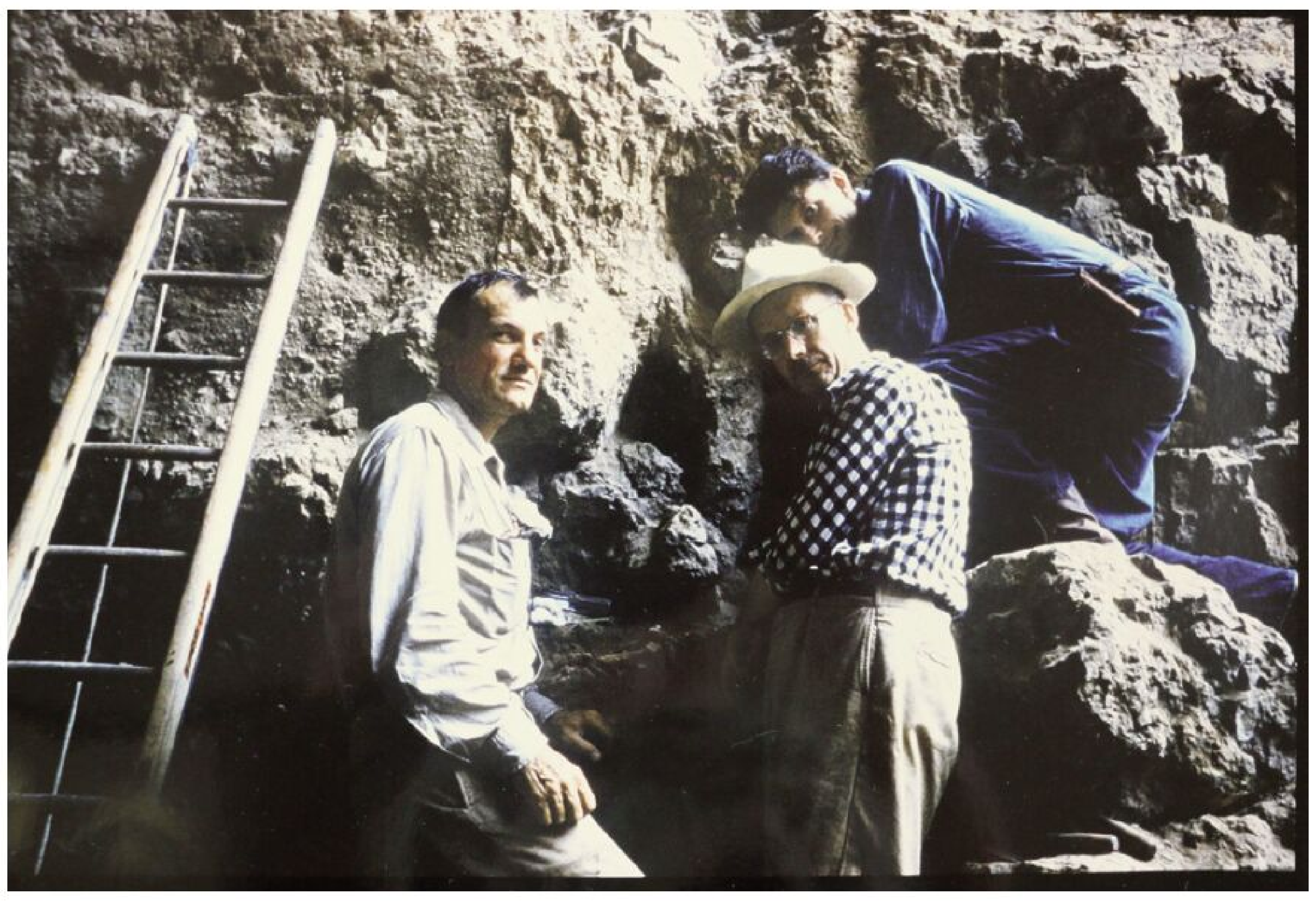
Phase B, in the next 75cm, was dated to the late Upper Palaeolithic (rather similar to the European Mesolithic in terms of microlithic stone tools) and given the name Zarzian from the type-site Zarzi, a cave to the south in Iraqi Kurdistan. A group of human burials belonging to this phase was found at the back of the cave.

Phase C, from 1.5-4m below his datum, had stone tools similar to the first major Upper Palaeolithic phase in Europe called the Aurignacian, which Solecki decided to give a local name to, choosing Baradostian

GRAEME BARKER

Below: Some of the excavation team in 2018 next to the trench during a visit from John Solecki, Ralph and Rose Solecki's son. This was his first visit to the site as a previous attempt in 1978 had been curtailed. From left to right: Ross Lane, Jessica Twyman, Emma Pomeroy, James Holman, Chris Hunt, Tim Reynolds, Paul Bennett, Graeme Barker, John Solecki, and Dlshad Abdulmutalb

NATIONAL ANTHROPOLOGICAL ARCHIVES, SMITHSONIAN INSTITUTION [2]



Top: Ralph Solecki (left), T. Dale Stewart (centre), and Jacques Bordaz (right) examining the famous 'Flower Burial in 1960

Above: Kurdish workmen taking a break during Ralph Solecki's excavations, around 1960. Huts belonging to the transhumant shepherds living in the cave can be seen in the background

because of the Bradost Mountain. The Aurignacian in Europe was associated with skeletal remains of Homo sapiens and though Solecki did not find human skeletal remains it was a reasonable assumption that the Baradostian was also made by our species.

There was then a gap of about half a metre, with the rest of the deposit producing stone tools of the Middle Palaeolithic Mousterian culture and, excitingly, the skeletal remains of 10 Neanderthals – men, women, and children.

One of them had lived to a good age despite probably being blind in one eye, losing his right arm above the elbow and becoming paralysed from the shoulder down, and suffering arthritis and bone infections in his old age. Disabled as a young man but dying as an older adult, the obvious inference was that he couldn't have hunted for himself and had been cared for by his fellow Neanderthals. A second had died some months after a projectile pierced his ribcage, the healed wound another hint that these Neanderthals were able to care for each other.

Another lay curled up with clumps of pollen under his bones, controversially interpreted as a bed of flowers and the subject of many reconstructions of mourning Neanderthals laying one of their group to rest with funerary rites.

The debate over this 'Flower Burial' continues to this day, but Solecki's discoveries have been central to the reinterpretation of Neanderthals in recent decades as clever and capable cousins of Homo sapiens ('Modern Humans' in archaeological parlance), rather than stereotypical cavemen and cavewomen living almost animal-like lives.

The Neanderthal skeletons found in Solecki's excavations dated to two main periods, one around 45,000 years ago, and another earlier phase which Solecki could not directly date with the methods available at the time, but which he estimated must be over 60,000 years old, based on the sequences of cold and warm climatic phases he observed from the different types of sediments in the walls of the trench.

During cold phases, repeated freezing and thawing leads rocks to fracture off from the cave roof, leaving layers of abundant rock fall, while warmer phases are characterised by the predominant accumulations of finer sediments. But Solecki was only able to make a rough estimate given what was known about Palaeolithic climate variation at the time.

Today, the current project has dated these lower occupations to around 75,000 years ago.

In the 1950s, Solecki's excavations were truly pioneering work, as few Palaeolithic sites in the region had ever been excavated. One of the only people who had previously conducted work on the Palaeolithic of Iraqi Kurdistan was Dorothy Garrod.

Garrod, a British archaeologist, later became the first female Oxbridge Professor in any subject as Disney Professor of Archaeology at Cambridge, before women could even formally be awarded degrees there. In the 1920s, she excavated at two sites in Iraqi Kurdistan, Hazar Merd and Zarzi. At Hazar Merd, Garrod found Middle Palaeolithic tools and Late Palaeolithic/Early Neolithic artefacts.

At Zarzi, she found lithics after which the Zarzian stone tool culture was named. Ralph Solecki would later spend time at the Iraq Museum in Baghdad showing Dorothy Garrod the stone tools from Shanidar Cave, keen to get her opinion on what he had found, as she was the only other person to have excavated a Middle Palaeolithic site in the region. It seems to have been her suggestion to call the Upper Palaeolithic phase 'Baradostian', and they remained in contact afterwards for many years.

If you've studied Palaeolithic archaeology, or the origins of burials and of community, there is a good chance you wrote an essay about the Shanidar Cave Neanderthals, especially the Flower Burial. Like many of the current team, Professor Graeme Barker, director of the new excavations, remembers doing exactly this as an undergraduate. When Graeme was approached by the Kurdistan Regional Government to undertake the first excavations at Shanidar Cave since 1960, this was an exciting prospect. Although Ralph Solecki had tried to return to continue excavations since the 1960s, political unrest had prevented him.

Working in collaboration with, and with support from, the Kurdistan General Directorate and the Soran Directorate of Antiquities & Heritage (the cave is in Soran Province), Graeme started to assemble a team to take on the task.

GRAEME BARKER

Right: Graeme Barker (centre) with a group of Kurdish visitors. The excavation trench can be seen in the background

GRAEME BARKER

Above: Geneviève Protière and Jeghir Khalil painstakingly sort through the heavy fraction from the flotation for any artefacts or ecofacts greater than 2mm in size

The geoarchaeologist and palynologist Professor Chris Hunt from Liverpool John Moores University and the Palaeolithic expert Dr Tim Reynolds from Birkbeck, University of London, made up the project's co-directors; colleagues Graeme had worked with over many years including in preceding excavations in the Niah Cave in Sarawak (Malaysian Borneo) and the Haua Fteah cave on the coast of Libya, both iconic caves excavated like Shanidar Cave in the 1950s.

This early part of the project was funded by the Leverhulme Trust, with geoarchaeologist Dr Lucy Farr and lithic specialist Dr Sacha Jones two of the core project staff, along with PhD student Marta Fiacconi working with Chris on cave pollen and Dr Evan Hill (Queens University Belfast) overseeing post-excavation work and studying the land snails. The project began in 2014 with survey work around the cave, but this had to be cut short when Daesh (Isis) threatened the nearby city of Erbil in the summer.

In 2015, the first challenge was to locate and expose the edges of the top part of Ralph Solecki's original 20-by-6m trench, which had filled up over the years, as it presented a convenient rubbish dump for the transhumant families living there. In contrast to Ralph Solecki's excavations, which were large scale and had reached bedrock in the central area, the recent excavations have sought to bring in all the new insights modern archaeological science could offer which were unavailable in the 1950s.

By doing high-resolution excavations around the edges of the original excavation, Graeme and the team hoped to enhance the original findings with new, fine-grained data on climate, chronology, diet, and behaviour of both the Neanderthal and Upper Palaeolithic Modern Human inhabitants of the cave.

With the discovery of new Neanderthals too much to hope for, the plan was to try to locate where Solecki had found some of them so the new methods could be used to calculate how old they were and what the climate was like when they were using the cave – climate change has long been cited as a possible smoking gun for global Neanderthal extinction around 40,000 years ago, at a time when Modern Humans were successfully dispersing over much of the globe.

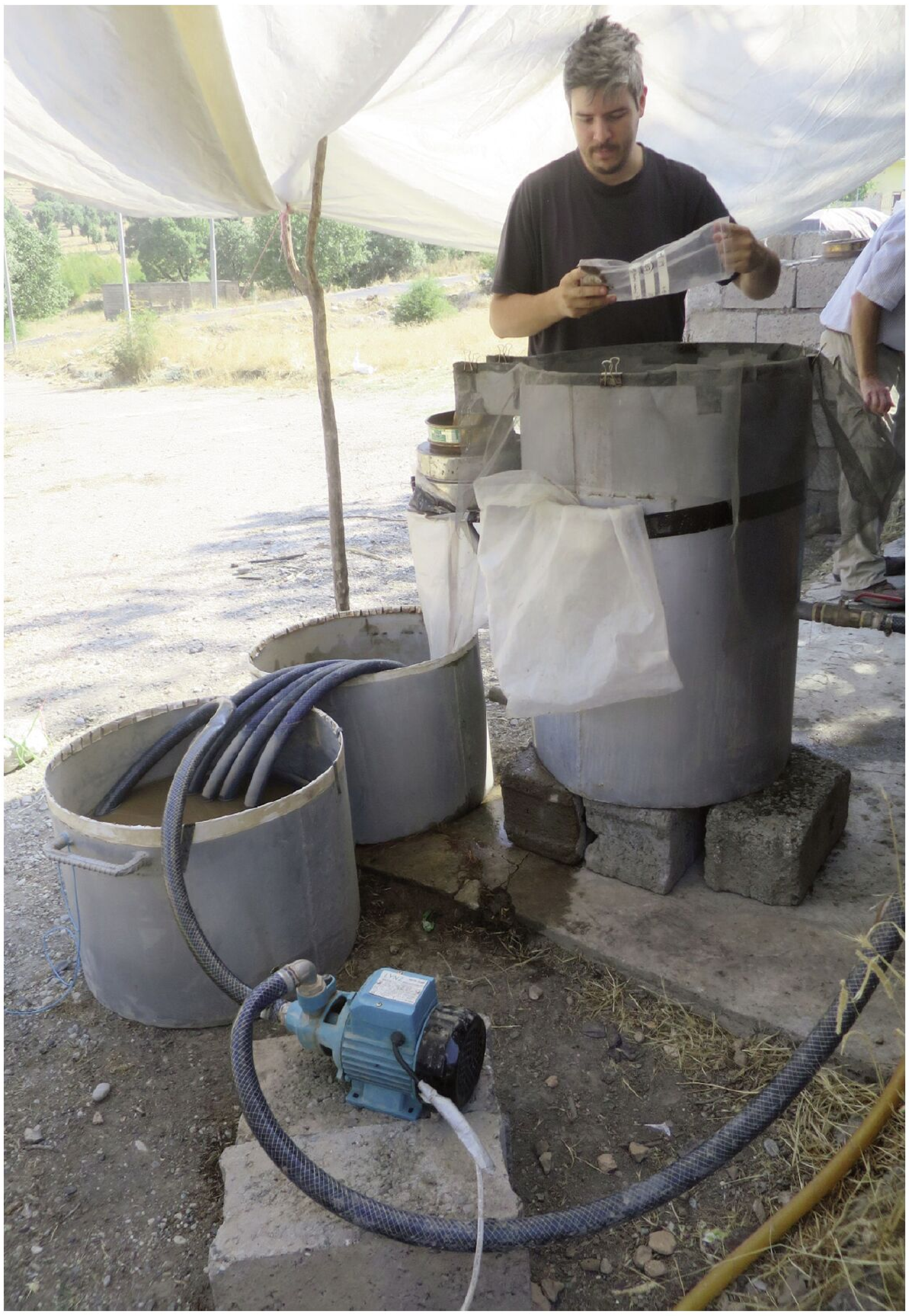
The new Shanidar Cave Project has now been excavating for 10 years. This has been an extremely exciting, challenging, and rewarding experience. Central to the project and its excavations are members of the Canterbury Archaeological Trust, professional field archaeologists who give up their precious holidays to come to join the team.

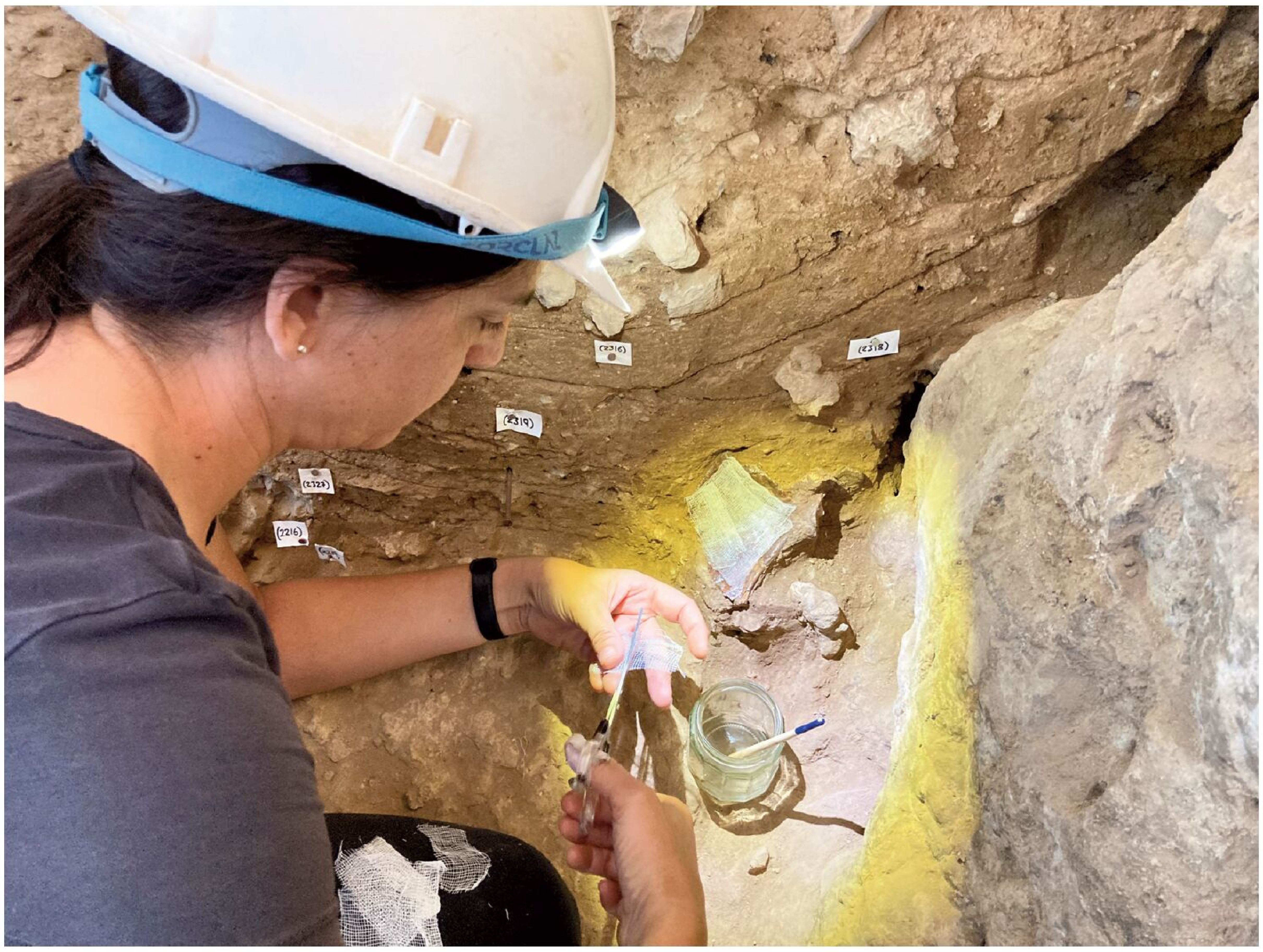
The extensive expertise of James Holman, Ross Lane, Jessica Twyman, and Hazel Mosley, along with former Director of the Trust Professor Paul Bennett, and their extraordinary skill in excavating all manner of natural and human-made features, have been absolutely essential to the project's success. Cave excavations are notoriously challenging, with some layers taking hours or minutes or even seconds to form (like a flash flood, or rocks falling from the cave roof in an earthquake), whereas other deposits accumulate over thousands of years.

The finest layers from water-borne silts, or sediments that have blown in from outside the cave, the faintest traces of shallow pools that once evaporated, and the most ephemeral evidence of fires that might have been used just once more than tens of thousands of years ago, all leave delicate archaeological signatures.

All of these deposits may then have been disturbed by human, animal, and/or

Right: Evan Hill conducting flotation using a locally made custom flotation tank


GRAEME BARKER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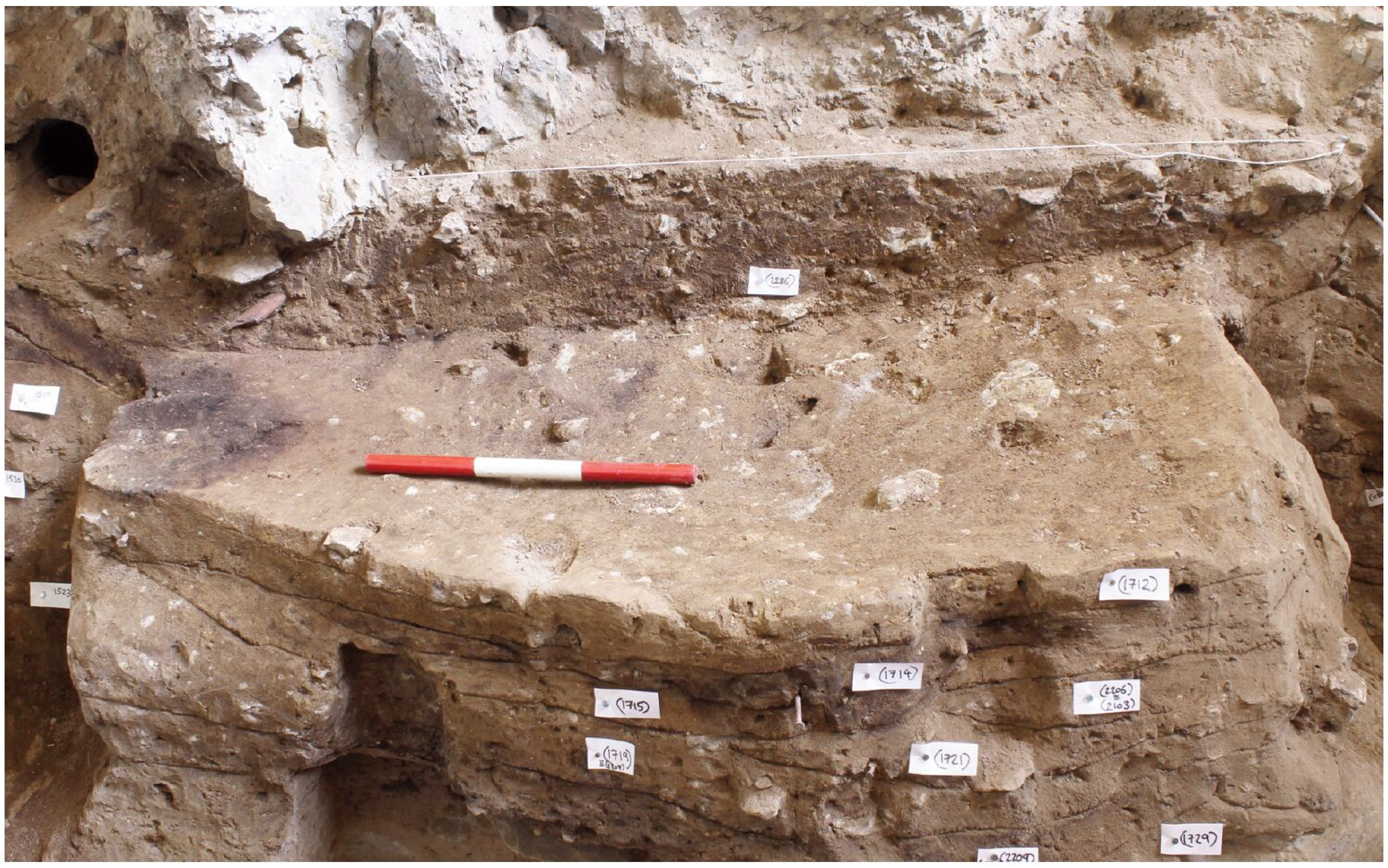

GRAEME BARKER

Top: Conservator Lucía López-Polín applying gauze and consolidant to an almost perfectly preserved 75,000-year-old scapula belonging to the individual we have called Shanidar A

Above: Excavations just to the north of Shanidar Z, showing small fireplaces among evidence of occupation, including lithics and animal bones

natural activity including rock falls and earthquakes. For these reasons, cave sediments require a keen and experienced eye to both excavate and interpret.

This detailed approach to excavation and analysis continues through all phases of the project. Once sediment is excavated, all of it is bagged and carried down the hillside to be transported to the dig house. There, under the supervision of Evan Hill, every bag is put through the flotation tank, which was skilfully custom-made by a metalworker in a nearby village.

Small seeds, charred wood and plants, and other light components float to the top and are caught in a very fine 0.5mm sieve, while heavier components sink (known as the heavy fraction, made up of stones as well as small animal bones, small flakes of stone tools and so on) and are caught in a fine mesh below.

Once dry, any artefact or ecofact, such as seeds, which may be useful to reconstructing behaviour and the environment and which are at least 2mm in size, are painstakingly picked by hand with small tweezers from the heavy fraction. On this kind of excavation half the team are working in the cave and half on the flotation and finds sorting. The rare visitors to the dig house team (most just want to rush to the cave) often cannot imagine that the tiny objects the team spend hours picking out can be worth anything to anyone.

In the lab, though, these tiny pieces of apparently nothing yield surprisingly rich and valuable data. Dr Emily Tilby, now at London's Natural History Museum, completed her PhD on the microfauna (small animals like voles, mice, and lizards), reconstructing the most detailed long-term mid-to-late Pleistocene climate record in the wider region. Because animals like voles are particular about the kinds of habitats they will live in, their bones provide a sensitive record of environmental fluctuations through time in the area around the cave.

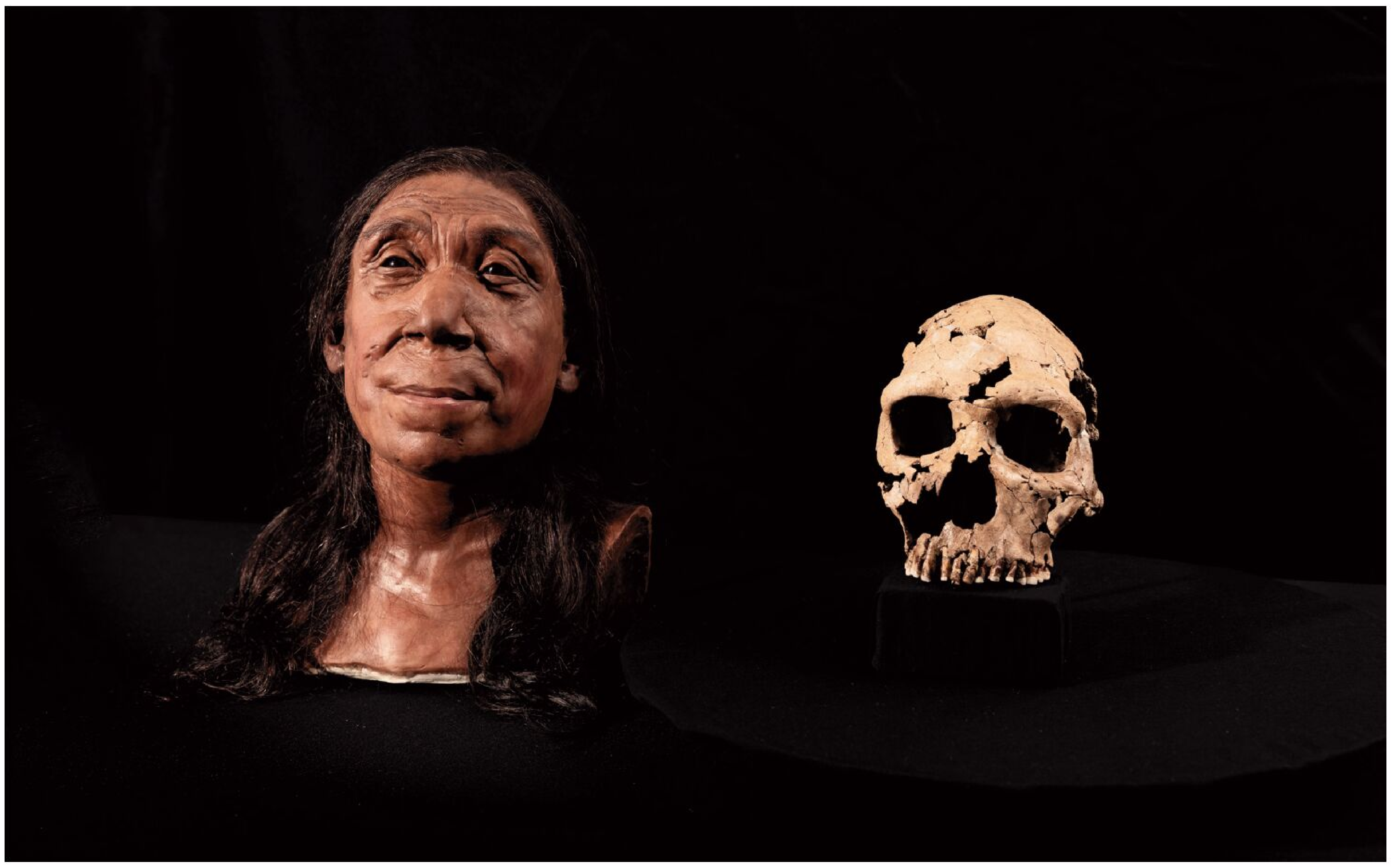
Similarly, Evan has studied the land snail shells, which offer a similarly detailed record of environmental change. These records document how Neanderthals and Modern Humans mainly used the cave when the climate was more or less like today and stayed away in colder periods.

Further evidence about the environment around the cave comes from Chris Hunt's studies of the pollen, extracted in his laboratory from sediment samples taken from every stratigraphic unit in the excavation. Other tiny finds telling big stories about our cave's occupants are a perforated shell with evidence of wear around the hole, likely worn as a pendant.

The tiny bits of charcoal and burnt plants that rise to the surface of the water during the flotation process have yielded their own remarkable evidence about life in the cave. Studying these fragments under a microscope, Dr Ceren Kabukcu and Professor Eleni Asouti at the University of Liverpool have identified minuscule pieces of burnt food. In the Middle Palaeolithic (Neanderthal) layers they included pulses and wild grasses, while in the Baradostian layers, the burnt morsels included pulses, wild mustard, and pistachio.

In both time periods, the ingredients had been soaked and mixed together before cooking, perhaps on heated stones like flat bread. Not only does this give us the earliest evidence of complex food processing, but it also highlights how plant foods were important in the Neanderthal diet, in contrast to the typical meat-eating stereotype that forms the common perception of Neanderthals.

Intriguingly, this discovery also suggests that Neanderthals at Shanidar Cave about


BBC STUDIOS/JAMIE SIMONDS

GRAEME BARKER

Top: Two faces of Shanidar Z. Left: the facial approximation by the Kennis brothers. Right: The reconstructed skull on which the facial approximation is based

Above: Signing of the new excavation permit in 2024. From left to right: Kaify Ali Mustafa, Director General for Antiquities & Heritage for Iraqi Kurdistan; Graeme Barker; Abdulwahab Suleiman, Director of Antiquities & Heritage (Soran Province); and Mohammed Lashkri, General Directorate of Heritage & Antiquities Liaison officer for international teams

75,000 years ago were processing similar foods in a similar way to Baradostian people, tens of thousands of years later. We have tended to assume that 'food as culture' – cuisine – such a fundamental part of being human, began with Modern Humans, but the Shanidar Cave evidence hints that cooking and eating together may have been part of Neanderthal lifeways as well.

Evidence of Neanderthal and Modern Human behaviour also comes from the lithics, or stone tools, that people left behind. Work on the lithics has been carried out by Dr Tim Reynolds, Dr Sacha Jones, and Chris Hunt's PhD student Michael Hitchcock.

The project has not recovered large quantities of stone tools, partly because the area we have excavated is relatively small, and perhaps because the periods when the cave was occupied were rather brief or perhaps because activity was more intense in other unexcavated parts of the cave.

Nonetheless, we see the expected sequence of Mousterian Middle Palaeolithic tools in the earlier phases, presumed to have been made by Neanderthals, through to the Baradostian Upper Palaeolithic, assumed to have been made by Modern Humans.

While reconstructions of our Palaeolithic ancestors often illustrate such tools being used to hunt or to cut meat, microscope analyses by Michael are showing that, as elsewhere, stone tools had much more diverse uses, including preparing hides and cutting wood and other plant materials, offering a glimpse into the organic components of the archaeological record that are not preserved at most sites.

We have to be careful about linking species to cultural traditions, though. Elsewhere in southwest Asia, we see that the earliest Modern Human skeletons at the sites of Skhūl (also excavated by Garrod) and Qafzeh, are associated with Middle Palaeolithic tools some 120,000-100,000 years ago.

In addition, whether Neanderthals made some of the first transitional Middle-Upper Palaeolithic tools in Europe remains contested by some. At Shanidar, Solecki associated the Neanderthal skeletons with Middle Palaeolithic tools.

The modern expectation is that Upper Palaeolithic tools at Shanidar only appeared about 42,000 years ago, after the Neanderthals became extinct. We are currently re-evaluating these associations – and this is something we hope to test in the future by extracting ancient DNA from the sediments.

However, we also have evidence of alternating Modern Human and Neanderthal use at some sites in Europe such as Grotte Mandrin, so could this be the case at Shanidar Cave? Ralph Solecki thought not and argued that there was a '10,000 year hiatus' between the Neanderthal and Modern Human use of the site.

This question about the nature of the transition between Middle Palaeolithic and Baradostian occupants of Shanidar is one that we are currently trying to resolve. Certainly, our excavations so far show no gap in occupation through the Neanderthal/Modern Human transition period.

When people with Baradostian technology arrived at Shanidar Cave, they brought with them not only new technology, but evidence of jewellery. We have found a shell bead and a marked shell fragment demonstrating this change in bodily decoration that we also see in other places associated with the Upper Palaeolithic and the arrival of Modern Humans. This is not to say that Neanderthals are not associated with any probable jewellery like this at other sites, but it certainly seems much less common before Modern Humans arrived.

The expectation of the Shanidar Cave Project was that we wouldn't uncover more Neanderthal skeletal remains. However, as many archaeologists know, human skeletons will always pop up unexpectedly in the excavation wall and/or on the last day of excavation and require even the best laid plans to be revised.

In 2015, a lone wrist bone and, later, parts of the legs of the individual that Ralph Solecki called Shanidar 5 were uncovered. The rest of Shanidar 5's skeleton had been found in 1960, when Solecki's team was trying to cope with having discovered the skeletons of several Neanderthal individuals as well as more than 30 'proto-' or early Neolithic skeletons in the rear of the cave. There was only so much they could do, and the team's physical anthropologist Dr T. Dale Stewart wrote that he believed there was still part of Shanidar 5's skeleton in the ground. His hunch proved to be correct.

It was at this point in 2016 that Dr Emma Pomeroy, an osteoarchaeologist and palaeoanthropologist, joined the project. Through their analysis of the bones themselves and the published photos of Shanidar 5, the team were able to show conclusively that these remains belonged to him. The team assumed that this would be their only encounter with new Neanderthal bones but, later in 2016,

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when reopening the part of Solecki's trench known as the 'Deep Sounding' where he had dug down to bedrock, a few hand bones alerted the team to the presence of more skeletal remains.

After carefully cleaning the wall of the trench – and as the field season drew to a close of course – the outline of a squashed ribcage, a few vertebrae and a cluster of hand bones were identified.

Those bones would have to wait tantalisingly for two more years until 2018, when the team could finally attempt to excavate them. This was no small feat, given the overlying 2m of sediment and large boulders, which lay close to another 5m-high overburden where the original trench had been stepped back for safety in the 1950s.
Sixty years on, the trench walls had to be carefully shored up and monitored.

Astoundingly, beneath the boulders and layers of sediment, a complete, 75,000-year-old skull emerged that had been squashed completely flat many thousands of years before. Despite this, we could already clearly identify Neanderthal features. Below the skull lay a ribcage and tightly flexed left arm.

Once Shanidar Z, as the skeleton became known, was carefully excavated and lifted over two field seasons, with ample application of a consolidant to stabilise the bones, the huge challenge of conserving and reconstructing the remains began.

Unfortunately, only the top half of the body was preserved: the bones lay right next to where the famous 'Flower Burial' had been removed in 1960, and in removing the fragile remains in a single large block of sediment, Solecki's team probably inadvertently removed the lower half of Shanidar Z's skeleton.

The way the Flower Burial (and the three individuals underneath, as it turned out) was removed meant that Shanidar Z's lower body will likely never be identified, since the bones became jumbled and damaged in the process.

At the time, Solecki's team used a common method that was a good choice based on what they knew when making their decision about how best to recover the Flower Burial, but the unforeseen consequences of removing the skeleton in this way influenced the current team's decisions about how Shanidar Z would be recovered.

We named the new skeleton Shanidar Z rather than allocate a new number to them as Solecki had done with his finds because we were – and are – uncertain how the new finds, of the upper half of an individual, related to the bones below the Flower Burial given numbers in the Solecki sequence, something that won't be clear until we study them where they are conserved, at the Iraq Museum in Baghdad, or perhaps we might never be sure.

The breathtaking reconstruction work on Shanidar Z's remains was undertaken by Dr Lucía López-Polín, a specialist conservator on secondment from the Catalan Institute for Human Palaeoecology and Social Evolution (IPHES). It took over 14 months, and there remains more work to do.

We already know that Z was female and relatively delicately built, especially for a Neanderthal, with heavily worn teeth and degenerative changes in her spine reflecting her older age. As part of the Netflix documentary *Secrets of the Neanderthals*, made by the BBC and released in 2024, a stunning facial reconstruction of Z was made by the famous Kennis brothers, identical twins known for their engaging facial approximations showing what our ancestors might have looked like.

The reconstruction and documentary were especially well received in Kurdistan, which was particularly heartwarming for the project team. To many Kurds Shanidar Z is indeed "The Mother of Kurdistan".

The team have made lifelong friends and long-term colleagues in Kurdistan, who give them the warmest welcome and treat them as neighbours while the team stay at a house in the village near the cave. The Directorate of Antiquity & Heritage's representatives, in recent years Jeghir Khalil and Sherzad Hassan, are core members of the excavation and post-excavation team and have been regular and valued colleagues on site.

One of the burning questions is whether, like the Flower Burial just above and beside her, Shanidar Z's bones will also be surrounded by pollen, and whether that pollen got there naturally or whether it might have been part of some burial ritual. Future analyses will tell. But at present, Chris's pollen studies suggest that burrowing bees may well have been at least partly responsible.

The team is also studying her remains for more insights into her life, such as her diet and her movements around the landscape, through modern chemical analyses. In parallel, PhD student Oscar Lozada is conducting similar analyses of the remains of ibex and wild goat that had been hunted by these Neanderthals and Modern Humans to see how the animals roamed around the landscape. Perhaps the ibex and wild goats and sheep followed the same seasonal migrations that transhumant shepherds guide their domesticated flocks through to this day.

Excavations did not stop with the discovery of Shanidar Z, and again the Canterbury excavators came into their own. Their careful work revealed the fine natural layers forming the water channel that had been dug out to accommodate Z's body, as well as the small fireplaces and thin occupation layers extending away from the bones.

These excavations showed that people were living just arm's length from where the dead were placed – the living and the dead must have been intimately entangled.

Digging down beneath Shanidar Z the sparse partial remains of another individual, who we have named Shanidar A, were revealed. This showed that Z and the Flower Burial were part of a unique cluster of Neanderthal individuals whose bodies had been placed within a small area over the space of several different occasions, perhaps spanning a few generations.

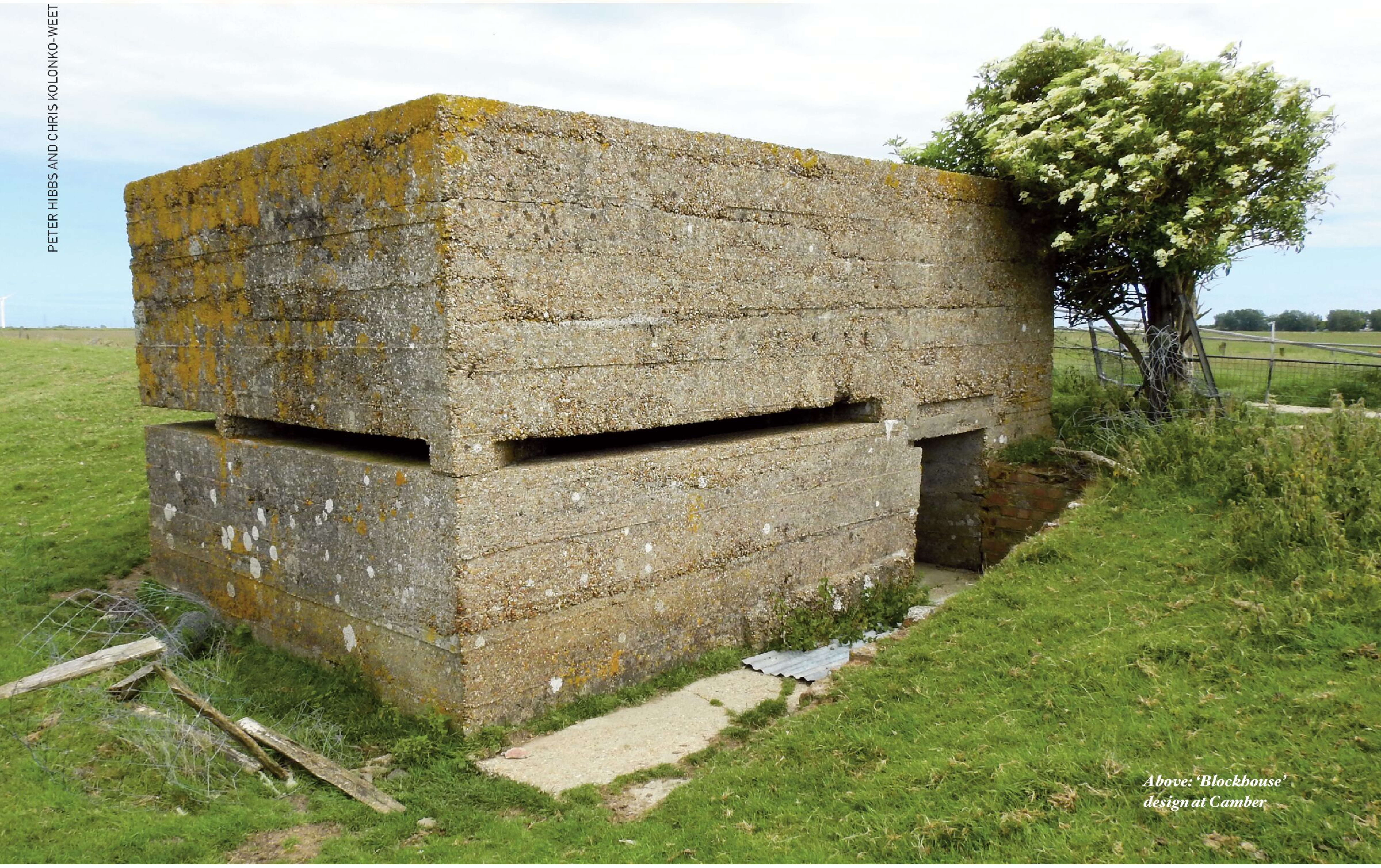
Below the skeletons, we have found further occupation layers and fireplaces interspersed with sterile layers that represent colder periods when people stayed away from the cave. The importance of Shanidar Cave highlighted by the older and recent excavations deserves to be displayed and conveyed to visitors.

With that in mind, Graeme and landscape architect Jamie Buchanan are working closely with Kurdish colleagues, including the General Director of Antiquities & Heritage Kaify Ali Mustafa, and Director for Soran Province Dr Abdulwahab Suleiman, as well as the Senior Education and Heritage Advisor to the Kurdish Prime Minister Dr Karzan Karim, to improve the visitor experience at the site.

The team look forward to continued collaborations both in excavating the cave and in developing the next part of its more than 100,000 year history of human occupation. We are still 4-5m above where Solecki reached in his 14m trench – are more Neanderthals waiting patiently for us? ■

Pillboxes

PETER HIBBS AND CHRIS KOLONKO-WEET



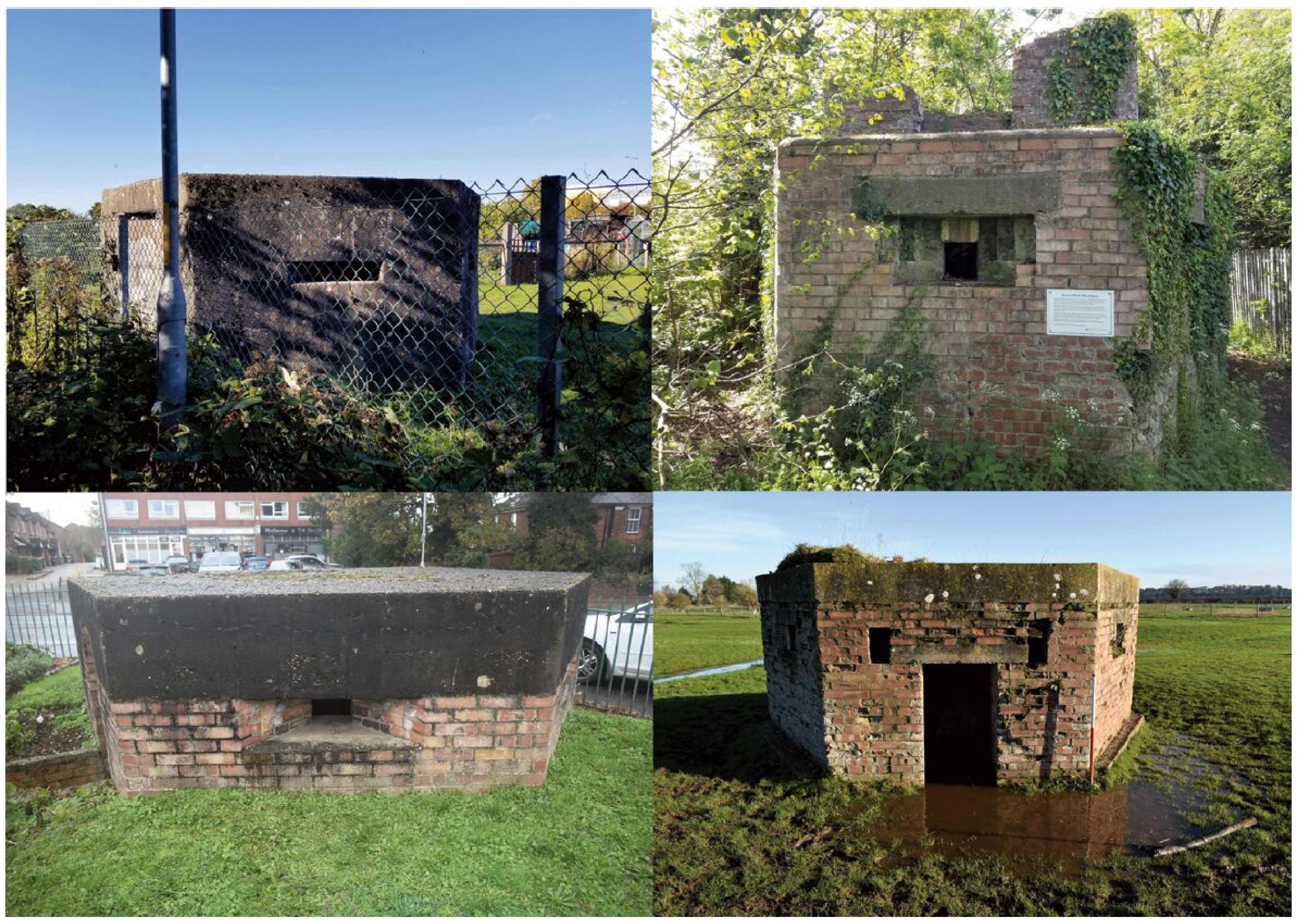
Above: 'Blockhouse' design at Camber

Unlocking the military myths of Britain's field defences

Pillboxes are one of the most tangible reminders of the Second World War; often isolated or disguised, these structures are under-researched and commonly misunderstood. Peter Hibbs and Chris Kolonko-Weet demonstrate how new archaeological approaches and archival source materials can unlock our understanding of these enigmatic wartime defences.

Pillboxes get a lot of attention from the public and can often invoke the desperate need to defend the UK following the fall of neighbouring European countries by June 1940.

But the pillbox still remains one of the most poorly understood wartime structures, and from an archaeological perspective, all we know for certain is the general location of surviving examples. In the years following the end



Right: Examples of pillboxes recorded as 'Type 22s' in Norfolk. Only the example top left matches the FW3/22 drawing but it still has some variation in construction technique

PETER HIBBS AND CHRIS KOLONKO-WEET [2]

of the war, the pillbox has gained a poor reputation, apparently built solely out of desperation, with no thought going into their placement in the landscape, with some myths claiming they were only built to pacify the public.

Their function and range of types is still not properly understood, and a lack of historical research means that those who built them and the units that would have garrisoned them in the event of invasion remains largely unknown.

Robust archaeological research into these wartime relics is helping to dispel many of the myths and in tandem demonstrates their military and strategic effectiveness. Pillboxes represent an untapped archaeological resource which can yield vital information about how the UK was to be defended and allows the landscape of defence constructed during the Second World War to be reinterpreted and assessed.

Although the pillbox is now synonymous with the Home Guard, in reality they were designed and built for the professional soldiers of the Regular and Territorial Army and the Commonwealth and Free Forces that formed the core of the Home Forces – the military organisation responsible for defending the UK. Approximately 1.8 million soldiers, not including the Home Guard, made up the Home Forces.

Current research shows that pillboxes, especially during the years of 1940 and 1941, saw limited use by the Home Guard, with their main role restricted to operating roadblocks, guarding communications, and reporting enemy movements in their immediate area, which freed up the professionals of the Home Forces to fight the enemy.

Though some pillboxes were incorporated into Home Guard defence schemes, mainly when they took on more responsibility between 1942 and 1943, the actual extent that pillboxes were used by the Home Guard remains to be properly researched but was likely limited due to the short period in which the use of pillboxes was authorised.

The pillbox was a short-lived defensive structure, with construction taking place from June 1940 before being officially halted in February 1942. After the use of pillboxes was discouraged, and the construction and use of trenches encouraged.

Below: Example of a 350/40 pillbox in Norfolk built by the 240th Field Company Royal Engineers

The pillbox was soon obsolete and its use to be avoided unless absolutely necessary.

The anti-invasion defences also represent a rare instance in archaeology where there is a rich, untapped, documentary record which can support investigation and analysis. This vast documentary record survives in the National Archives.

Unfortunately, it is often assumed, wrongly, that because pillboxes were built so quickly, no records were kept. In the mid-1990s Colin Dobinson, working for the CBA, uncovered the vast number of documents held within the National Archives and the insight they give into the defence of the UK during the wartime years.

Bringing archaeological recording and documentary research together is helping to shed light on the importance of wartime pillboxes as remnants of the Second World War and the need for them to be properly recognised to aid their preservation at a national and local level. There's much more to pillbox archaeology than a spot marked on a map in the Historic Environment Record and a single-sentence site description – which is what comprises most archaeological pillbox records in the UK.

Wartime defences in the UK warrant the same level of archaeological investigation as earlier defences, as all we really know is their general location.

Typology trouble

One of the biggest issues surrounding pillboxes is a poor understanding of how they were designed and classified. A limited number of 'official' pillbox

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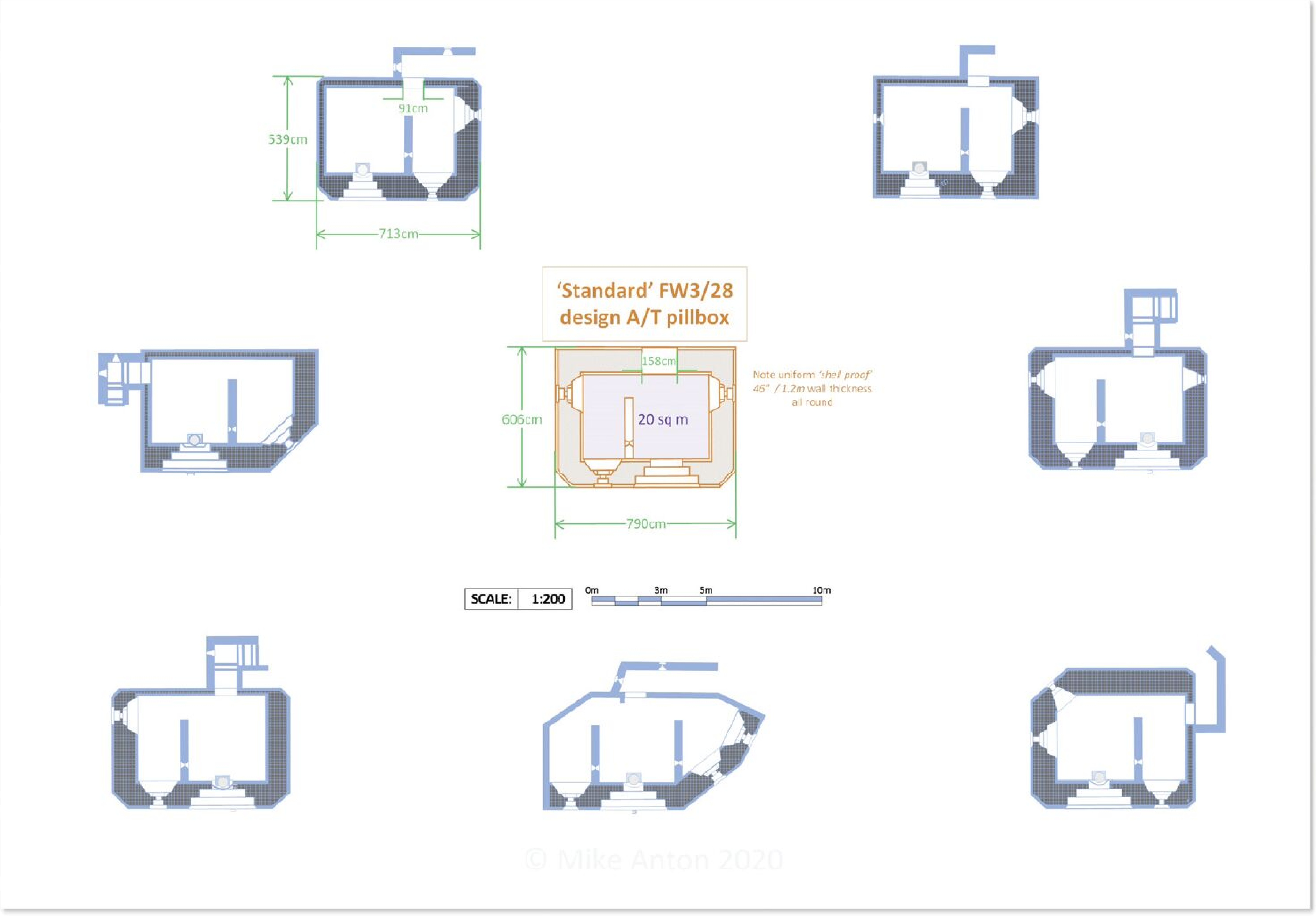
539cm
91cm
713cm
'Standard' FW3/28 design A/T pillbox
158cm
606cm
20 sq m
Note uniform 'shell proof' 46" / 1.2m wall thickness all round
790cm
SCALE: 1:200
0m
3m
5m
10m
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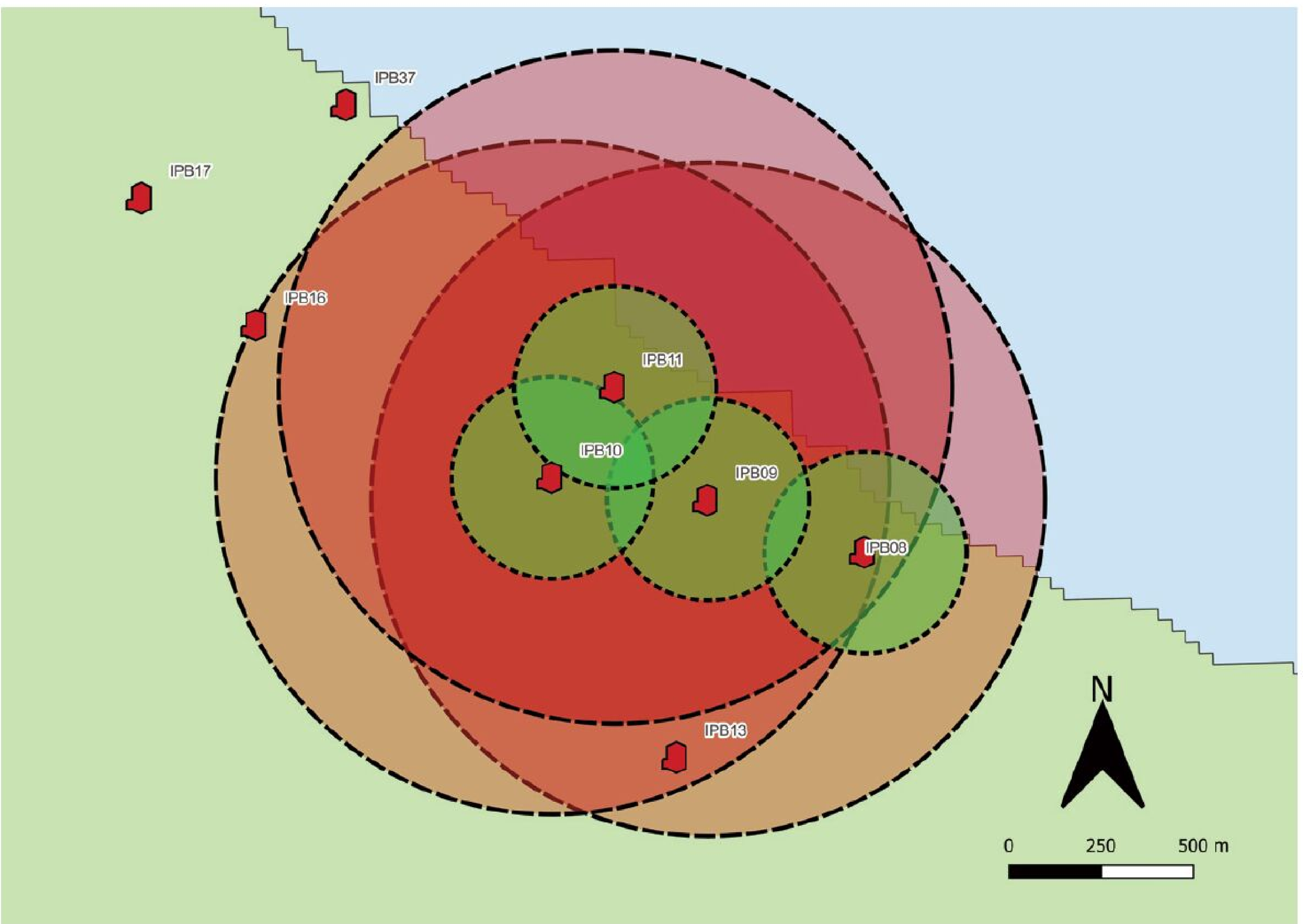
M. ANTON

***Above:* Pillboxes recorded as Type 28s in Sussex. None match the FW3/28 drawing (centre)**



***Right:* Distribution of infantry pillboxes at Reighton Sands, North Yorkshire, with effective ranges mapped. Rifle in green and Bren LMG in red**

PETER HIBBS AND CHRIS KOLONKO-WEET

drawings, referred to as 'types', have been identified through documentary research. These were drawn up by the War Department's Directorate of Fortifications and Works Branch 3 (DFW3). The currently known pillbox designs cover drawings FW3/22 to FW3/28.

Some commercial and local designs, such as the Norcon, Croft and Ruck, and Darlington CRE drawings have also been identified. However, most pillboxes have been recorded and classified using the limited number of DFW3 designs.

Among enthusiasts, pillboxes are often exclusively identified by shape alone, with a lot of effort going into classifying pillboxes and using their form to create a typology in relation to the known pillbox designs, under the belief that this is a reliable indicator of pillbox type. Unfortunately, this approach is not reliable and conceals the vast range of localised pillbox designs encountered across the UK, as well as trends and variations in size, form, and construction.

Attempting to classify all pillboxes by a limited range of types has seriously limited understanding of the actual range of pillbox designs that survive today. This modern simplification of typology has also had a knock-on effect in terms of preservation, as it gives the impression that, for example, all pillboxes recorded as being 'Type 22s' are identical and there is no variation in how they were designed or built.

Pillbox typology is much more complex. The drawings issued by DFW3 provided a suite of exemplar pillbox designs that could either be built without alteration or used as the basis for new designs. The DFW3 drawings most importantly outlined the required reinforced concrete wall thicknesses to provide protection from bullets or shells, with the two thicknesses being 'bullet-proof' (0.38m) and 'shell-proof' (1.06m).

The DFW3 designs also outlined required dimensions for embrasures and horizontal arcs of fire, so a pillbox could accommodate the primary weapons in use by the Regular and Territorial Army at the time: the Bren Light Machine Gun (LMG) and Enfield rifle, Vickers Medium Machine Gun and 2-pounder anti-tank gun. Inevitably, pillboxes were built using these drawings.

However, the DFW3 drawings were also used to create a vast range of localised designs by Chief Engineers and Commander Royal Engineers at the Command and Corps level. The drawings created by local CEs and CREs were assigned their own drawing reference numbers, making them official pillbox designs in their own right.

This means that surviving pillboxes that appear to be the same shape as the DFW3 designs, but have been significantly altered, e.g. to accommodate a specific weapon, to increase size of the pillbox, or to increase wall thickness from bullet-proof to shell-proof standard, or to facilitate brick shuttering construction, are likely to be localised designs or even unidentified national designs.

A prime example of this is the 350/40 pillbox built under the supervision of the 240th Field Company Royal Engineers in Norfolk. This is often referred to as a 'shellproof Type 24' because it is the same shape as the FW3/24, but has walls built to 1.06m thick, indicating shell-proof specification. The assigned drawing number shows this pillbox is a unique design, and historically bears no relationship to the FW3/24, other than its sub-hexagonal shape.

Surviving pillboxes of this design are recorded with the local Historic Environment Record as 'standard Type 24 pillboxes', making them vulnerable as they would be considered a common type during planning applications, despite representing a rarer localised design of local, if not national importance.

These issues of pillbox typology were identified by Dobinson in the mid-1990s,

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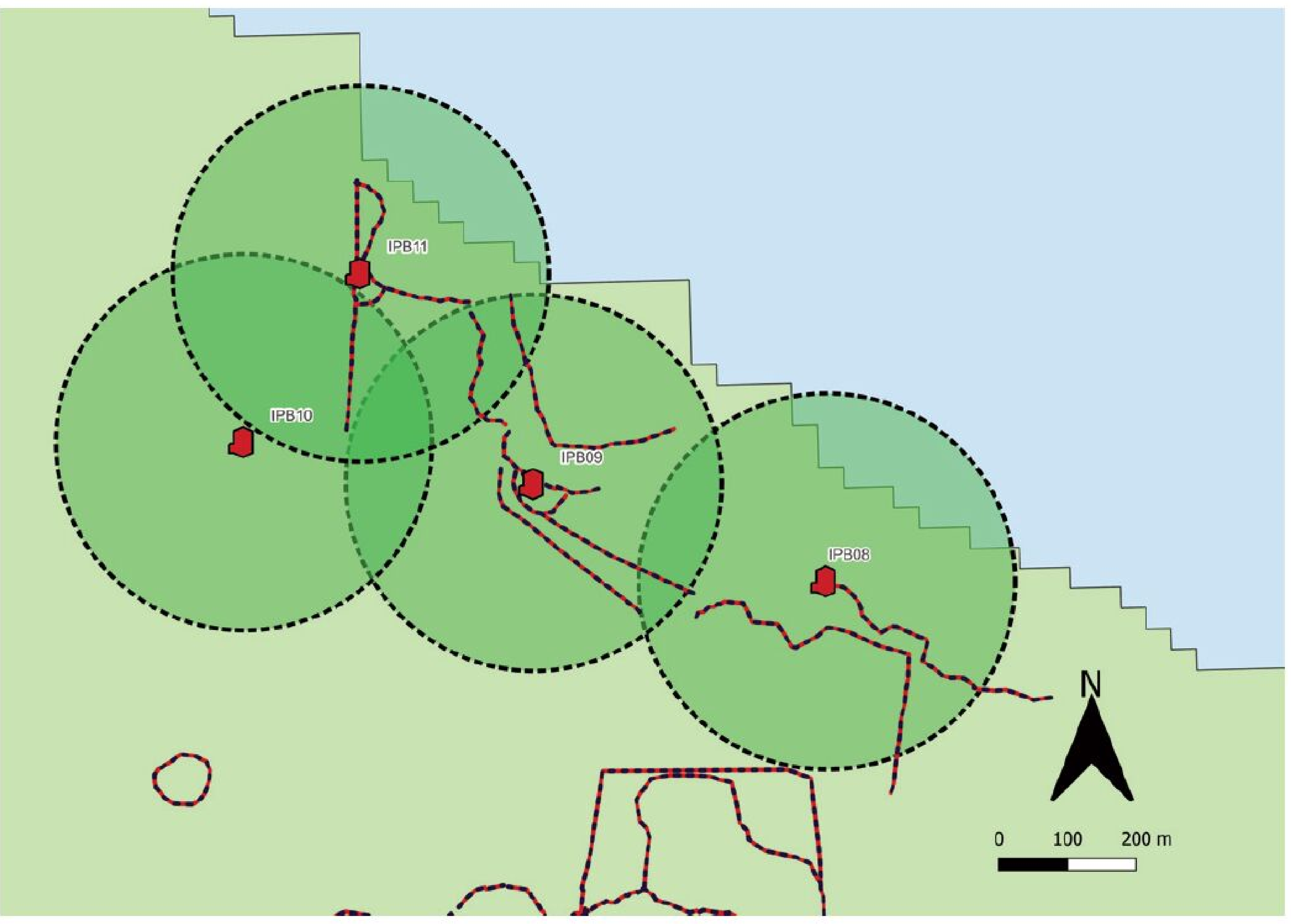
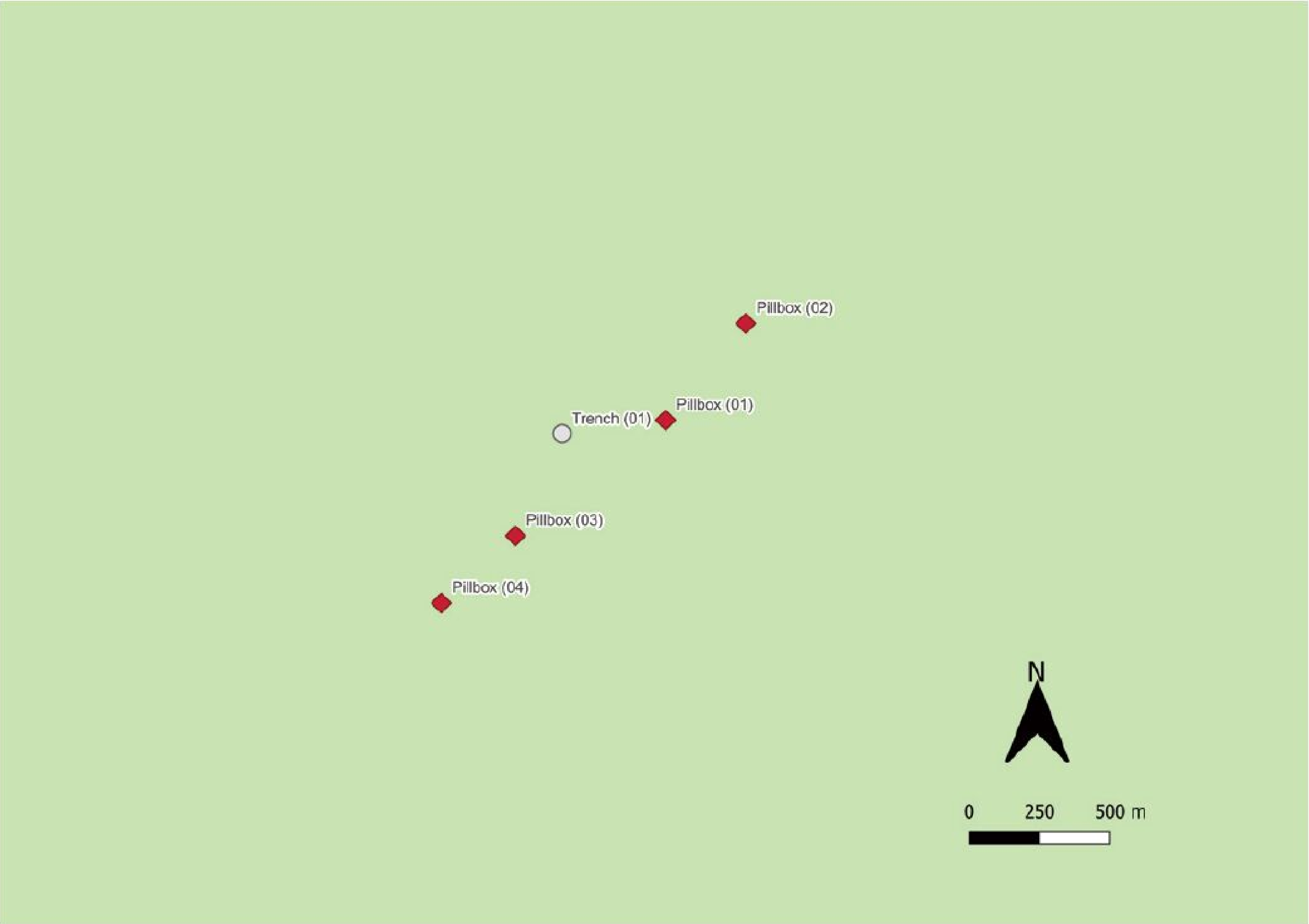
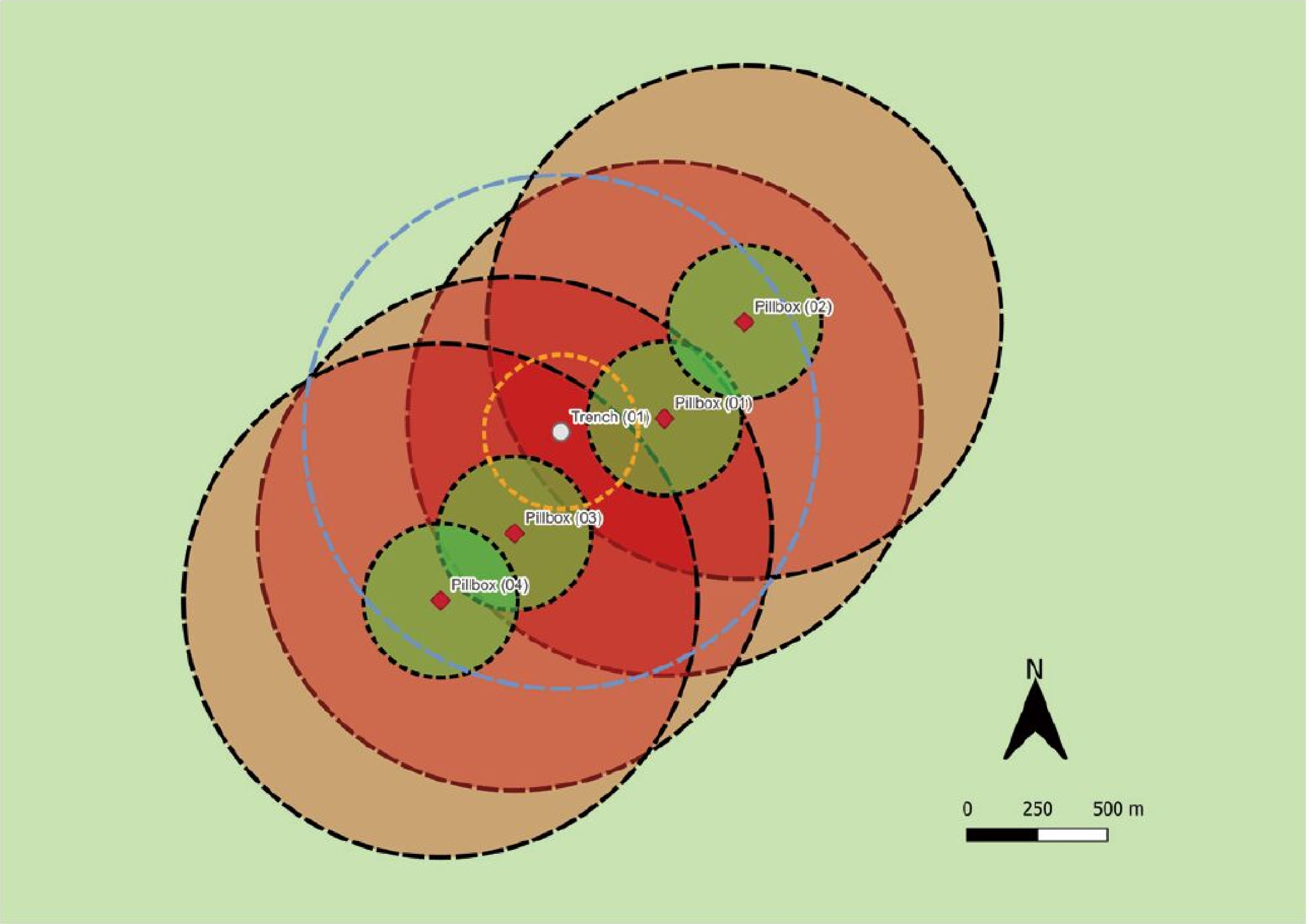
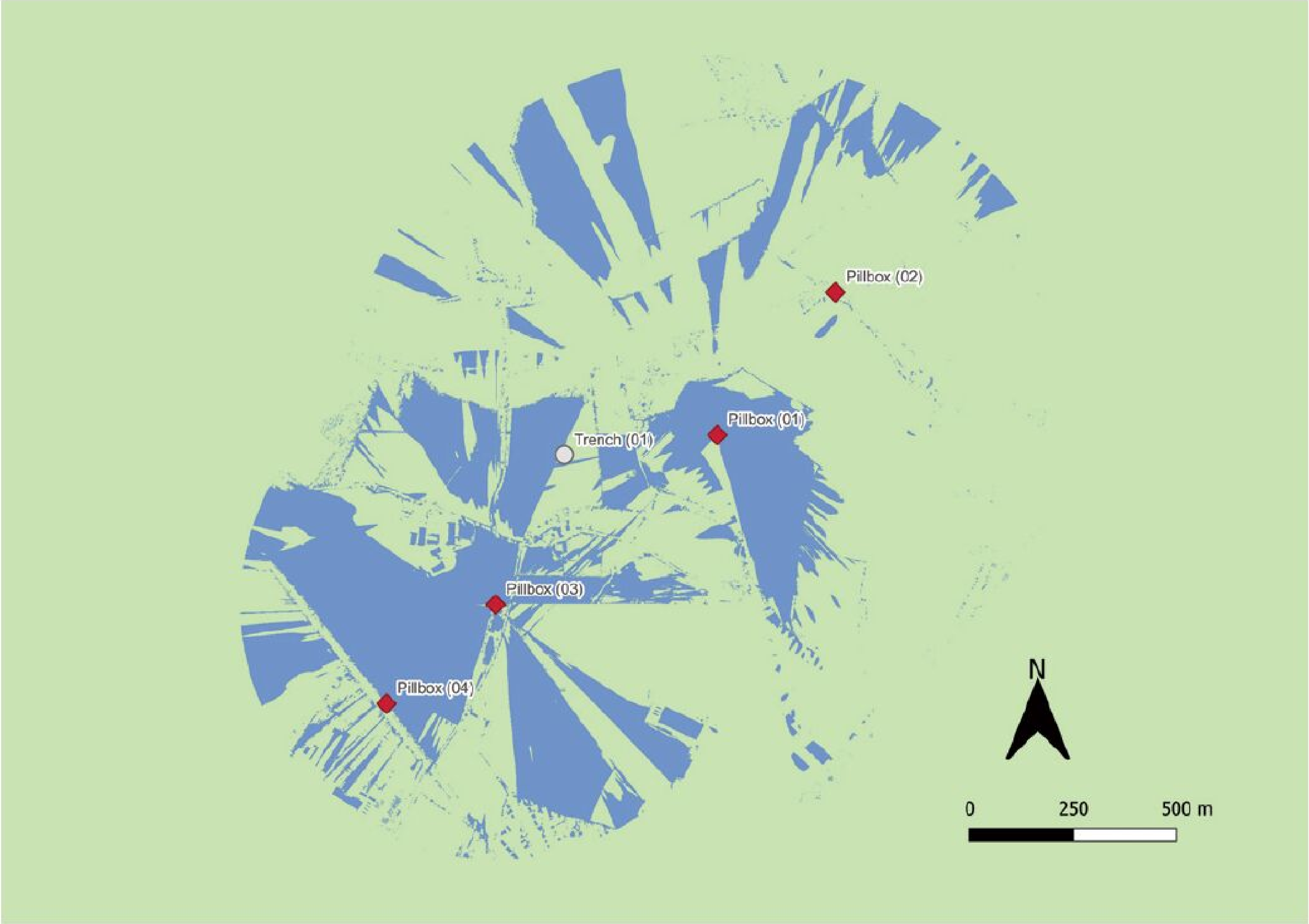








***Top left:* Effective rifle range with barbed wire obstacles identified through 1940s aerial photographs LiDAR**

***Top right:* Distribution of pillboxes and trench in North Walsham, Norfolk**

***Above left:* Fig 7- Distribution of pillboxes and trench with effective ranges. Pillbox LMG red, Pillbox rifle green, trench LMG blue, trench rifle orange**

***Above right:* Fig 8- Distribution of pillboxes and trench with LiDAR DSM landscape analysis plotted to LMG effective range, showing dead ground within which the trench and section post was sited**

but are now common; hindering our understanding of the range of pillbox designs, as well as hampering preservation by giving the impression that all pillboxes are identical and built to a limited range of designs, with surviving examples frequently seen as being of little value to retain during development.

Archaeological investigation shows that no two pillboxes are identical when their defensive context and construction is investigated, analysed, and demonstrated. By and large the range and variation of pillbox designs across the UK still remains to be adequately investigated and it is not known how many pillboxes actually conform exactly to the DFW3 drawings.

Trying to fit pillboxes into a limited range of types is also pointless, given much more can be learned through thorough archaeological investigation.

Supporting defences

The impression given today is that pillboxes sat isolated in the landscape. But they represent a fraction of a cohesive network of defences that were built, with barbed wire, supporting slit trenches, roadblocks, and anti-tank obstacles long since removed.

An example of this is demonstrated by the defences of Filey Bay, in North Yorkshire. The five-mile frontage of beach was defended not only by pillboxes but also by a complex network of barbed wire entanglements, anti-tank obstacles, weapon slits and trenches, and around two battalions of infantry at any one time. Around 43 pillboxes were sited to defend this coastline, with an additional 64 trenches and weapon slits, identified through aerial photograph analysis; though it is likely there were many more. Trenches survive today but are rarely identified or recorded.

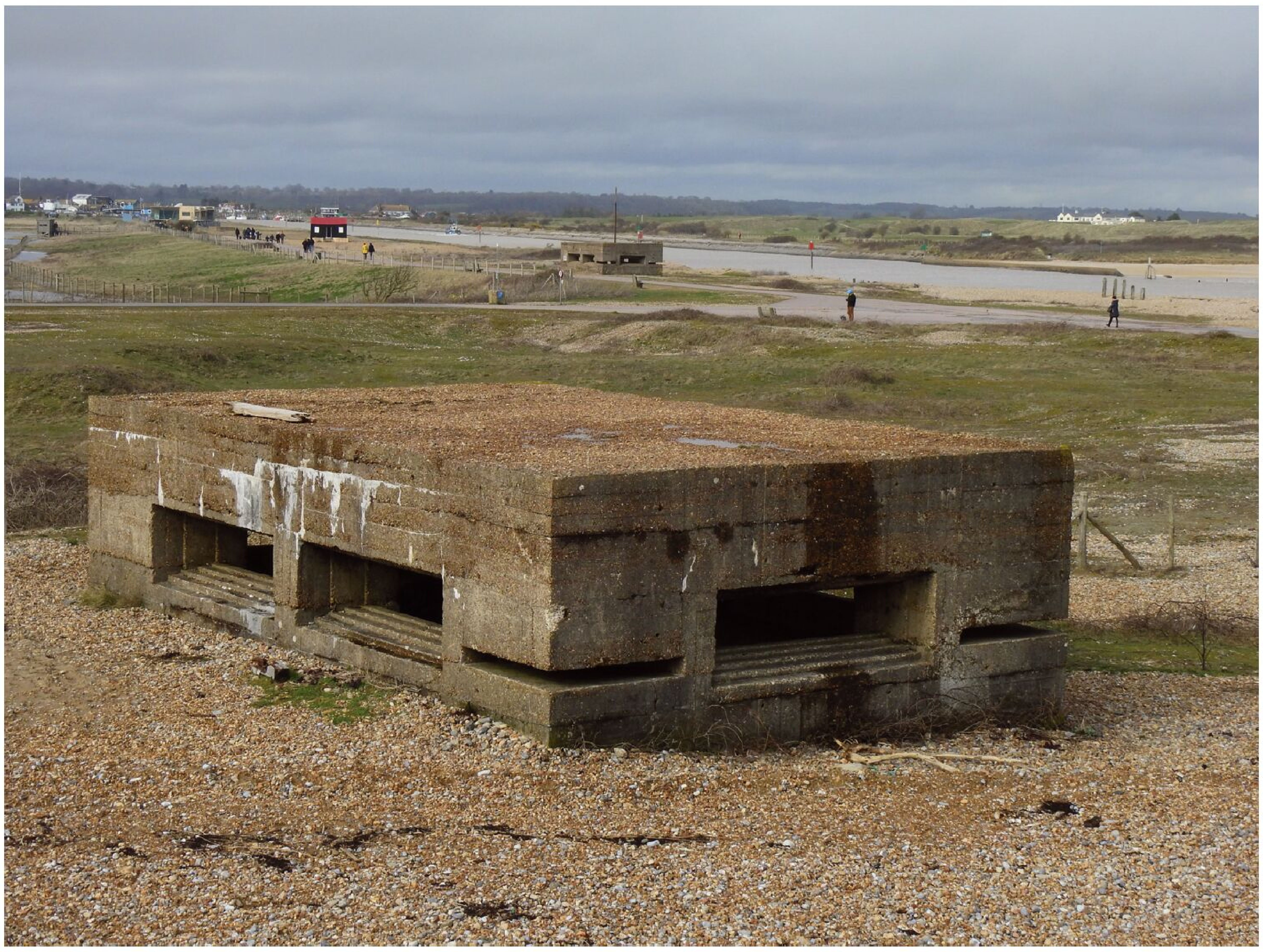
Building up a picture of the lost supporting defences is vitally important to archaeological study. Doing so ensures that pillboxes are not seen in isolation. Of additional importance is identifying how the supporting defences were modified over time in response to changing strategies deployed by the soldiers of the Regular or Territorial Army. The fluid nature of localised defensive strategy is rarely investigated or appreciated, with the belief pervading that defences were built and never adapted.

Aerial photographs and period military training manuals have been central to investigating supporting defences. Although it is well known the Luftwaffe flew reconnaissance flights, the RAF also flew reconnaissance sorties across the UK and were able to take better quality photographs as they weren't restricted to flying at extremely high altitude to evade anti-aircraft fire and fighters. These RAF aerial photographs provide a snapshot of the defences as they appeared at a set time in history and allow them to be mapped using Geographical Information Systems (GIS).

Once pillboxes are put into their context, it is then possible to analyse how the landscape was to be defended in more detail.

Defensive and landscape context

Pillboxes, and their supporting defences, were connected to the landscapes they defended, with the location and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Above: Pillboxes B7/1 and B7/2 (background) alongside the River Rother

surrounding landscape as important as the defences themselves.

The defenders also had a clear understanding of how to defend their area of responsibility, ensuring all avenues of approach to their positions were covered by effective fire, and ensuring their weapons were deployed to ensure 'maximum efficiency', to kill the enemy with minimal waste of ammunition, while ensuring as much protection for themselves as physically possible. The weapons within the defences, and how they were to be used, also heavily influenced how an area was to be defended.

The British Army invested considerable time determining how best to use weapons in defence, with many lessons learnt during the First World War in regard to the effective use and deployment of light and medium machine guns. Effective ranges, ballistics, and siting of defensive positions had been meticulously studied and training regimes implemented to ensure soldiers had a high level of expertise and to ensure consistent proficiency with each weapon system.

Archaeological methods are now vital today to investigating the relationship between landscape and weaponry. One method developed by the authors has been the combination of data obtained from wartime training manuals and pamphlets with GIS.

Manuals provide a vital insight into the methodology of weapon use and how specific weapon systems, around which pillboxes were designed, were used for specific tasks. The Bren LMG and Enfield rifle, both chambered for the .303 round, had specific effective and maximum ranges, as well as specific ranges out to which soldiers would be trained to hit a human-sized target consistently and effectively.

Although pillboxes were also designed to accommodate additional weapons, such as the Vickers Medium Machine Gun, and the 2 and 6 pounder anti-tank guns, by far the most common pillboxes were designed around the Bren and Enfield rifle.

The effective range of the weapon systems is the most useful to consider, as this was the maximum range at which a soldier would be trained to fire at and kill a human target. Rifles and LMGs also have two very different functions: rifles used for pinpoint accuracy out to a range of between 300 and 400 yards (274 and 365m), and LMGs used to provide effective fire onto a wide area out to approximately 1000 yards (914m).

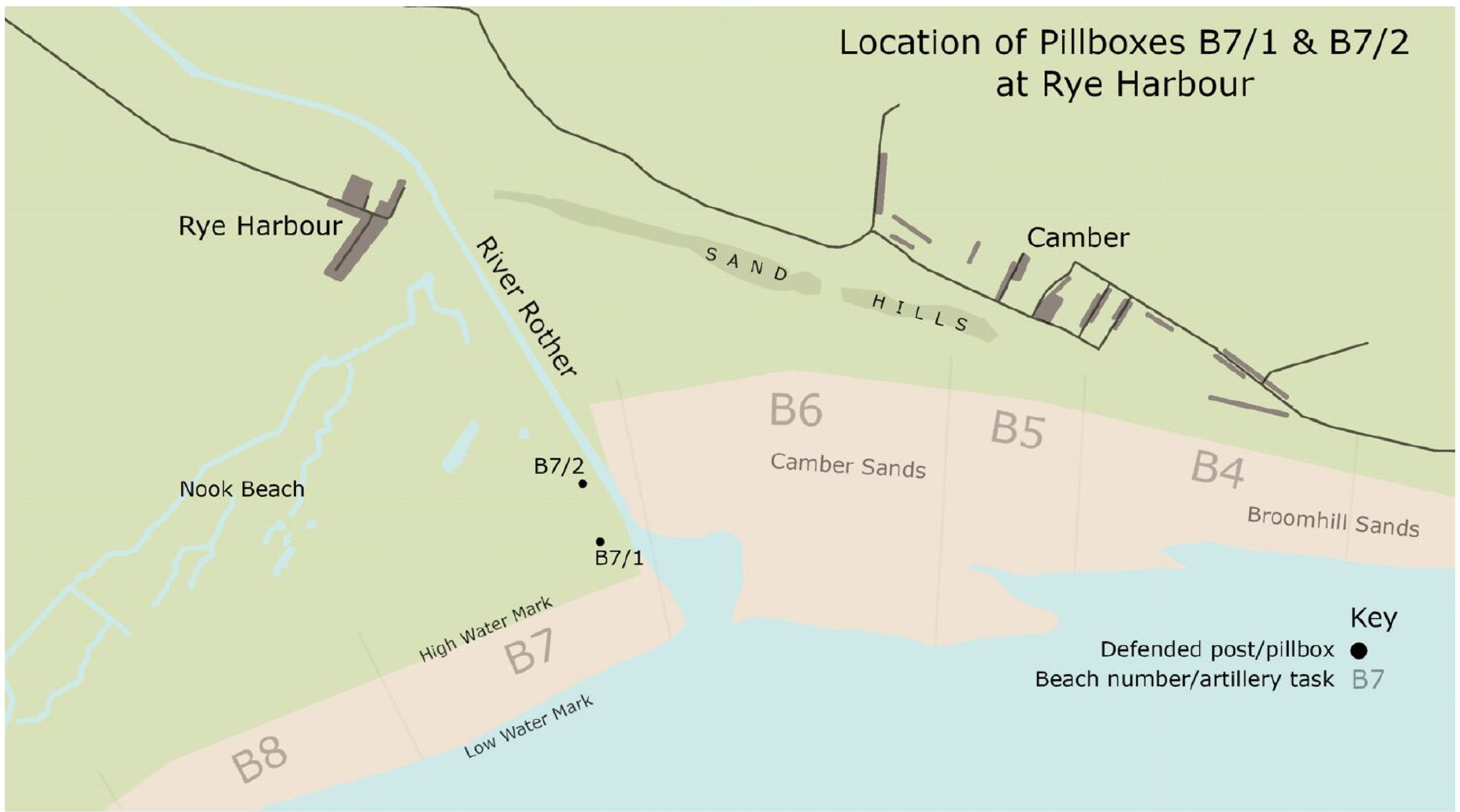
Pinpoint accuracy was not a requirement for LMGs, instead denying passage through an area, while ensuring that enemy infantry that strayed into the fire were killed. A single .303 bullet was more than enough to incapacitate or kill someone upon being hit.

Mapping effective ranges around pillboxes can help us draw conclusions regarding pillbox distributions in the landscape. It is abundantly clear that effective ranges dictated how close pillboxes were sited to each other.

Locating pillboxes within effective ranges allowed for adjacent pillboxes to provide supporting fire, as well as create interlocking arcs of fire (cross-fire from multiple directions) across the landscape. Doing so effectively denied large areas of landscape to the enemy while also ensuring the defenders could kill any enemy within their sights. This dispels the myth that pillboxes were placed randomly in the landscape, with no planning.

Mapping effective ranges and supporting defences helps to demonstrate defensive strategy. A key tenet of defence is that an obstacle is not an obstacle unless it is covered by effective fire. This means that if the defenders can't cover an obstacle, then the enemy is liable to simply remove it

Below: A map showing pillboxes B7/1 and B7/2 at Rye Harbour



without any consequences.

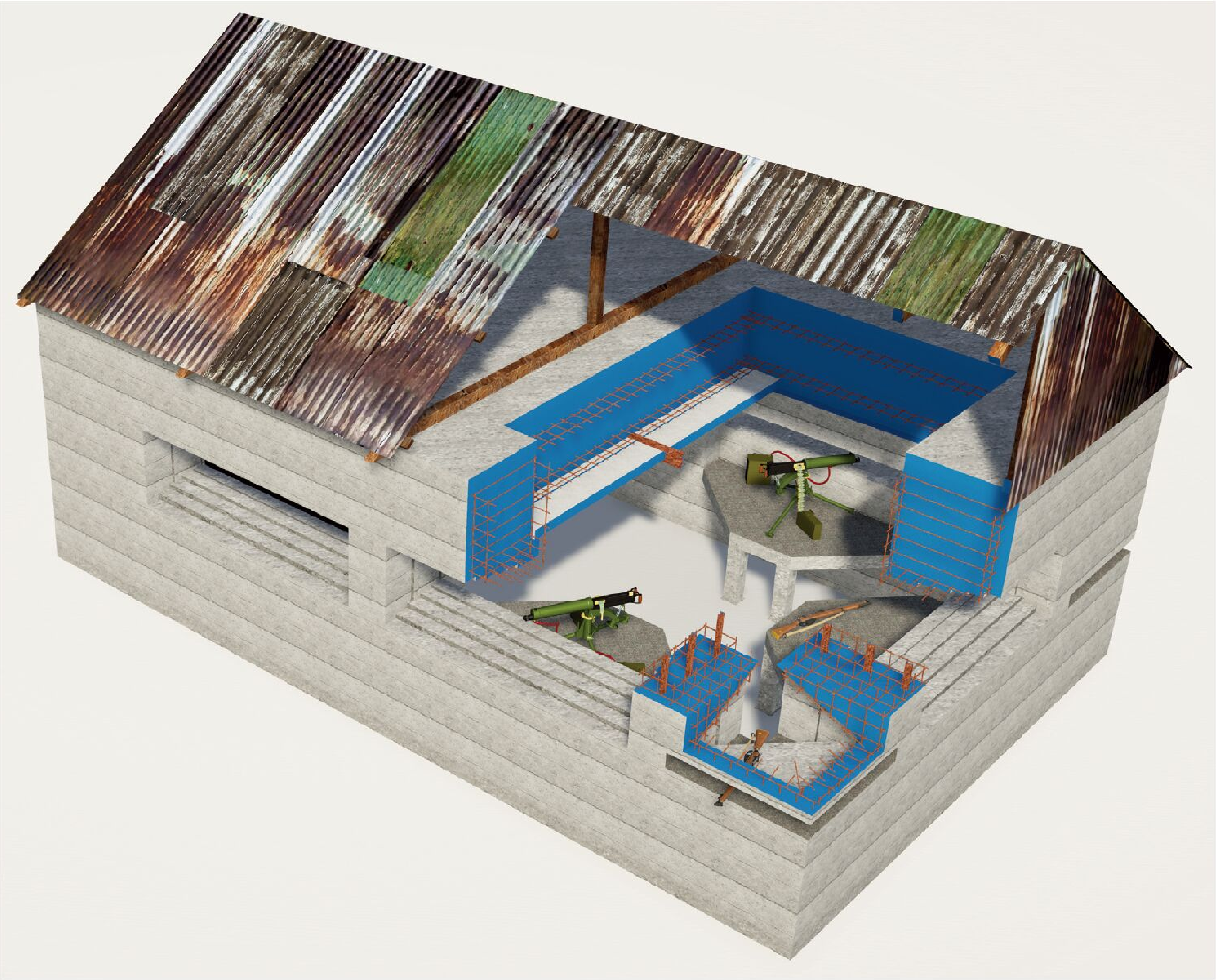
A good example of this is provided by the clifftop pillboxes at Reighton. Barbed wire obstacles were erected around the pillboxes, with the aim of keeping attacking infantry at a distance keeping the defenders out of grenade range, as well as halting assaults onto the pillboxes and pinning enemy infantry down within the effective range of the weapons in the pillboxes. It is clear that barbed wire was set up within the effective range of the rifles, allowing defending infantry to pick off any enemy held up by the barbed wire, protecting both the barbed wire and the pillbox.

Although LiDAR has been applied in the past, such analysis focused on 'viewsheds', and assessing visibility between pillboxes. This analysis is limited, firstly because pillboxes didn't have to be intervisible to defend a given area they just needed to be able to 'see' the landscape they were defending and cover the approaches to adjacent pillboxes. Secondly, you can often see much further than a weapon's effective range.

LiDAR is better used to analyse the landscape within which pillboxes sit, highlighting areas of 'dead ground' and cover which the soldiers in the pillboxes would not be able to target with direct fire. This demonstrates which areas were more vulnerable as well as identifying how effectively pillboxes could cover their immediate area with fire, within the effective ranges of the weapons employed.

A series of four surviving pillboxes are located to the north-west of the Norfolk town of North Walsham. These pillboxes were likely deployed to protect the flank of the F.I demolition belt. The even distribution of these in the landscape is clearly deliberate, to ensure overlapping arcs of fire from both LMG and rifle fire, as demonstrated by using GIS to map the effective ranges of these weapons. However, upon consulting available aerial photographs of the area dating to 1946, a section of communication trench leading to a section post has been identified. This section post appears isolated in the landscape, sitting in apparently open ground with little support or concealment.

So why was it built? LiDAR provided a likely answer. It was clear from the effective ranges that the section post sat within the umbrella of LMG fire from the nearby pillboxes (Pillboxes 01 and 03), which would have offered supporting fire and protection, and revealing it wasn't as isolated as it appears on the aerial photographs or on the ground today.



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Above: A cutaway of pillbox B7/2 showing two Vickers guns on tables. The camouflage roof design is speculative

Right: Vickers machine gun set up on SE table in pillbox B7/2

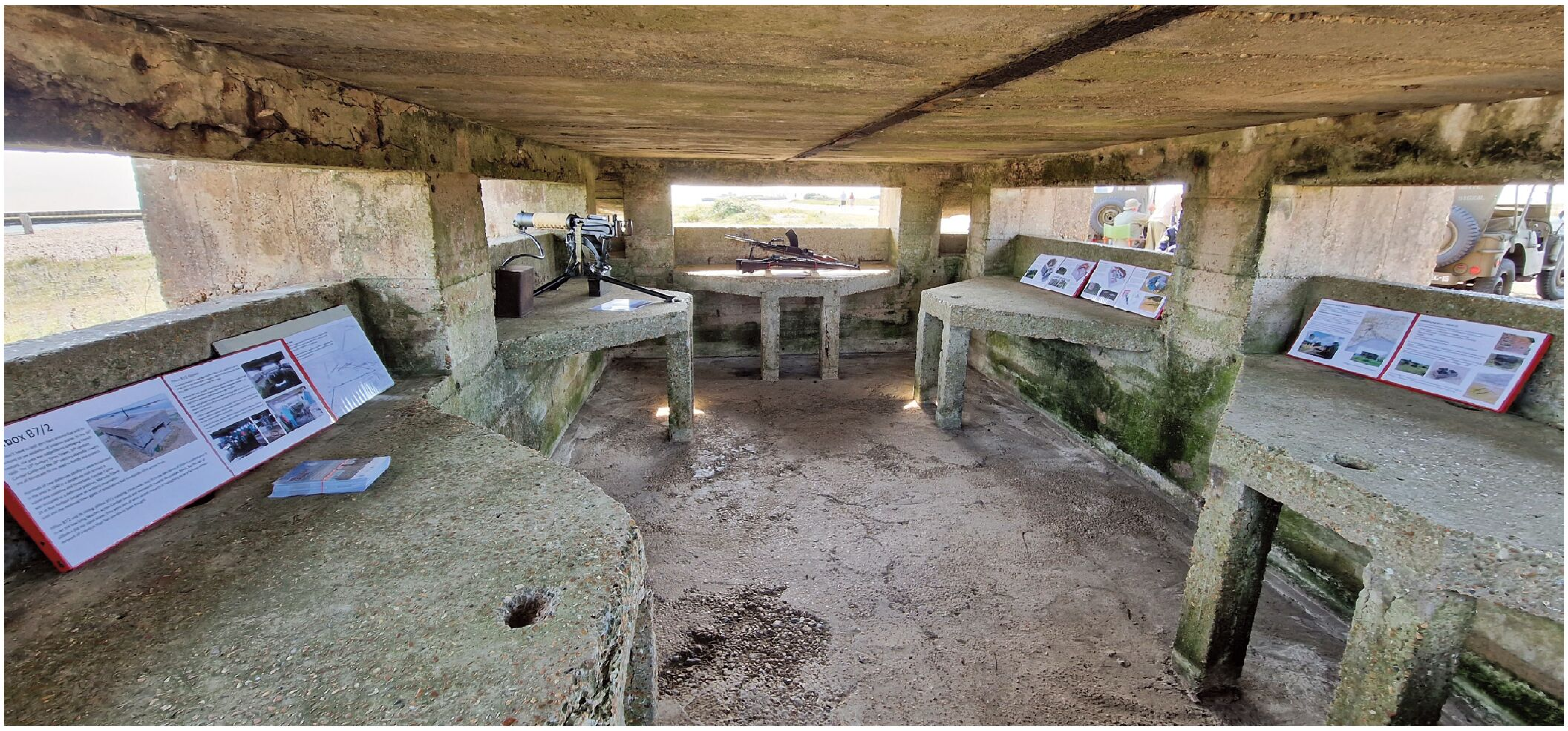
As the local landscape has changed little since 1940, the LiDAR Digital Surface Model (DSM), which includes surface features including trees, hedgerows and buildings, was used. This showed an area of dead space between pillboxes 01 and 03, indicating an area that the two pillboxes could not fire onto. The section post was sited perfectly within the dead ground, allowing the defenders to plug the gap and cover the vulnerable area where the enemy could infiltrate between the effective fire of the pillboxes.

This analysis explained the presence of the isolated section post and further demonstrates that the defending soldiers of the Regular and Territorial Army responsible for defence knew exactly what they were doing and could effectively read the landscape themselves, ensuring that any vulnerabilities in the defences were identified and mitigations put in place.

Rye Harbour

Rye Harbour, East Sussex, marks the point at which the River Rother meets the English Channel, 39 miles from France. At the river mouth and foreshore stand two pillboxes, known by their wartime serial numbers as B7/1 and B7/2 (p41, top photo).

Post some photographs of these structures on social media and watch the



Top: B7/2 pillbox open day

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comments flood in: "This pair of pill boxes are death traps." "The embrasures leave the crew exposed. Perhaps lined with sandbags in use." "A suicide position unless heavily sandbagged; the garrison would be horribly exposed to incoming fire."

The consensus is that those responsible for the design and siting of these "death trap" pillboxes didn't really know what they were doing. Most of us did not witness the grave situation of 1940, yet we, by default, question the competence of those who did. The few extant remnants of the invasion scare of 1940-41 at any location in the UK today are not usually enough by themselves to tell us what was going through the minds of those siting and building pillboxes 85 years ago.

If we are critical today, it is because we don't understand what the Army was trying to achieve. To try and understand the thinking behind the design and location of a feature, we need to utilise a range of resources to put the missing defences back into the landscape. The Rye Harbour pillboxes provide an interesting case study.

The map on p41 illustrates how the casual observer today sees two pillboxes in isolation, with no other wartime defences in close proximity, making it hard to make sense of them. Note how the beaches are numbered as artillery targets, with the pillbox serial numbers following suit.

Troops in the area

On 26 May 1940 orders were issued to fortify the Royal Military Canal as a stop line (a continuous anti-tank obstacle) with pillboxes and earthworks. The Napoleonic waterway sealing off the Romney Marshes between Pett Level and Hythe was hastily prepared, although no measures were implemented to defend the coastline in the Rye sector at this time.

On the same day, over in France, the 1st Battalion, The Royal Irish Fusiliers had already been in action for a week, trying to stem the tide of the German Blitzkrieg. The Fusiliers were professional Regular Army soldiers. They had fought German infantry "at 15 yards range, with grenades, Brens fired from the hip and the bayonet", engaged hostile tanks, experienced dive-bombing and shelling, blown bridges in the face of the enemy, witnessed the tragedy of refugees - and a defeated army on the beaches of Dunkirk.

The battalion reached Dover on 31 May, and moved north for reorganisation at Knutsford, Cheshire. On 10 July 1940, the Fusiliers took over the Rye sector, just as the Battle of Britain was commencing overhead. Attached to 134 Infantry Brigade of 45 Infantry Division (TA), these battle-hardened veterans of modern, mechanised warfare were to oversee the construction of defences in the Rye Harbour area until their departure in November 1940.

It is important to understand how circumstances drove a lot of decisions, including pillbox design.

Archive documents

The Fusiliers held an area of about 7 miles wide and 5 miles deep and to do this (even by mobilising their training company), they could muster a force of perhaps only 900 men. The battalion's defence scheme (battle plan) in the National Archives states that the battalion's "relative numerical weakness" meant that "every post has had to be sited to obtain the maximum field of fire in order to eliminate dangerous gaps, and in order that posts... shall be mutually supporting."

The scheme elaborates further: "The layout of the defence, the linking of all adjacent posts by fire, depth, the passive protection afforded by concrete and concealment, the network of anti-tank obstacles... our own intimacy with the terrain and its difficulties for the enemy - are all factors, which, separately and cumulatively, tend strongly to neutralise any local penetration which the enemy might effect."

The above paragraph may appear to be somewhat optimistic, perhaps even placebic for the benefit of troops who were expected to "fight until the last man and the last round." Regardless of the reasons behind this, this text gives us an insight into the design and siting of Rye Harbour's pillboxes; it certainly shows that a lot of factors had been taken into consideration.

We know that the commanding officers of both the 7th Devonshire Regiment (45 Division's machine gun battalion) and Fusiliers met at Rye Harbour on 25 July and 15 August to discuss matters before the pillboxes were built, allowing the machine gun experts to suggest the ways in which the Vickers could be deployed in support of the Fusiliers' defensive layout.

The Royal Engineers were presumably also present to input on pillbox design and construction.

Fire tasks

The defence scheme records the tasks for the Vickers guns in both pillboxes, each housing a section of two guns:

Section in Pillbox B7/1

Primary: defensive fire onto the beach south westward.
Secondary: Counter-penetration to the westward and northwestward.

Section in Pillbox B7/2

Primary: Defensive fire on Camber Sands and Broomhill Sands (concurrently), and on entrance to River Rother.
Secondary: Counter-penetration as circumstances demand.

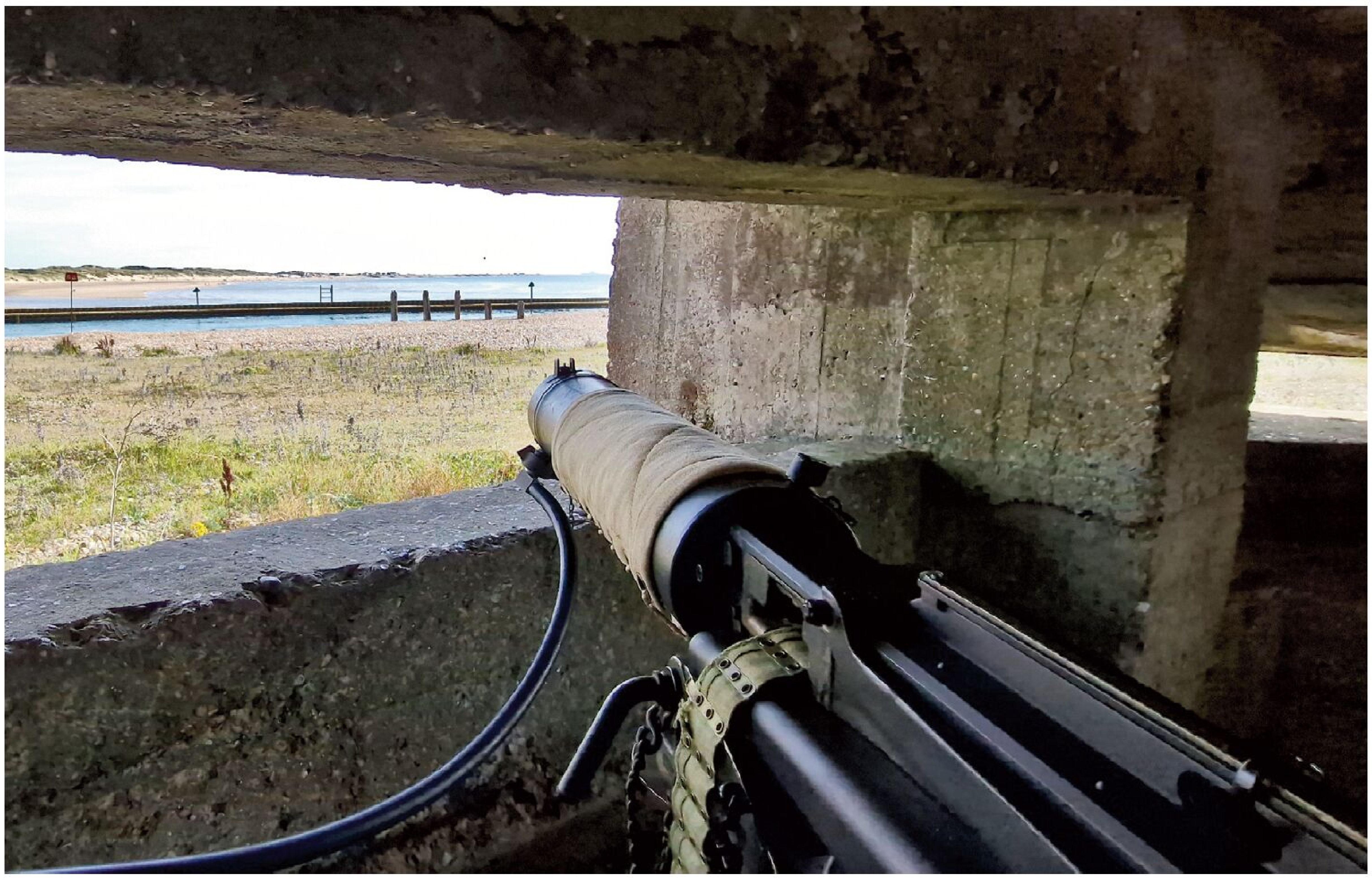
The secondary tasks suggest that unused embrasures were not sandbagged (contrary to popular opinion) to reduce vulnerability as this would hamper the defensibility of the pillbox.

Surviving map tracings indicate the primary fire tasks; we can see that B7/2 is shooting out to ranges of 2500 yards (1.4 miles) eastwards while B7/1 is tasked at 4,000 yards (2.3 miles) westwards to Winchelsea Beach.

Walking the target areas, the fire tasks cannot be fulfilled by digging down for protection, so the guns must be above ground, either in an open sandbagged emplacement or a reinforced concrete pillbox. The latter provides the greater protection.

Pillbox designs

There are two key pillbox designs; both are local to the Rye area and do not conform to the DFW 3 designs. It is presumed that the drawings were prepared at a local level by the Royal Engineers.



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Above: MMG in B7/2 laid on fire task eastwards over the River Rother to Camber Sands

Below: Volunteers clearing out Pillbox B7/1, May 2022

The Blockhouse design

The type seen on p36 is referred to as a pillbox in wartime documents, but some references to 'blockhouse' also occur, so this semi-official term is used here (rightly or wrongly) to describe this design.

The blockhouse is shellproof with reinforced concrete walls 107cm thick. The roof is nearly 60cm thick, double that of shellproof designs elsewhere in Sussex. A key feature is the all-round view afforded by low (15cm) embrasures, interrupted only by the roof stanchions; this fits with the "maximum field of fire" requirement.

Pillboxes B7/1 and B7/2

B7/1 and B7/2 appear to be an adaptation of the 'blockhouse' design with embrasures much larger and stepped in. The low observation slits on the front corners have been retained. Behind each of the main embrasures is a concrete table upon which a Vickers Medium Machine Gun (MMG) could be set up.

Several aspects of this design cause it to be dubbed as a "death-trap" pillbox. The embrasure size is predominant, as occupants can be seen clearly silhouetted, even at distance. Inevitable comparison with the blockhouse design is made, leading to a negative conclusion.

Standing inside, the embrasures do make one feel vulnerable, especially in strong winds and rain.

Community archaeology

In 2022 a Heritage Lottery-funded project, Discover Rye Harbour, saw volunteers from the newly formed Rye Harbour History Group (in partnership with Sussex Wildlife Trust and Sussex Military Research) clean out and record several pillboxes on Rye Harbour Nature Reserve. A 3D computer model was produced, with a view to updating the adjacent interpretation board and a pillbox open day held in B7/2.

In both B7/1 and B7/2, concrete floors were found under six inches of shingle and mud. Standing on loose shingle is stressful, as one is constantly monitoring balance and adjusting footing to stay upright. The stability of a flat surface underfoot relieved this subconscious stress immediately, reducing the feeling of vulnerability, the now higher walls offering greater protection.

Experimental archaeology

Some experimental archaeology with a Vickers gun set up in both pillboxes sought to answer some of the "death-trap" questions (see p43).

It was noted that the condenser hose coupling underneath the gun's barrel jacket required some clearance over the embrasure sill. To hit the specified ranges, elevation was necessary, hence the high embrasures. This pillbox design is all about how best to utilise the Vickers gun's range.

A hidden feature of B7/2 only became apparent when a Vickers gun was set up during our experiment. It was found that on the southeast table, swinging the gun to its extreme right of arc (photo above appeared to set it along the fixed line described on the map trace.

The pillbox was planned down to a minute level of detail; this alignment would make it easy to establish the line in the dark or smoke. Note also how the corner stanchion provides protection for the gunner from the southeast. The wide embrasure permits the gun to traverse and pursue waves of invading troops across the sandflats.

Camouflage, protection German intelligence mapping

The defence scheme states: "Camouflage and reinforced concrete have been utilised in place of natural concealment…exceptional protection…has been obtained."

The pillbox is obvious in the landscape, there being no natural camouflage. A wartime photograph shows both pillboxes with roofs, giving them the appearance of boathouses. German intelligence maps mark both pillboxes; because the camouflage would eventually be compromised, the level of protection needed to be high.

Landscape analysis

On the east side, it appears that B7/2's primary fire task coincides with sandbanks. Camber Sands and Broomhill Sands are very flat and, even at high tide, the sea is very shallow.

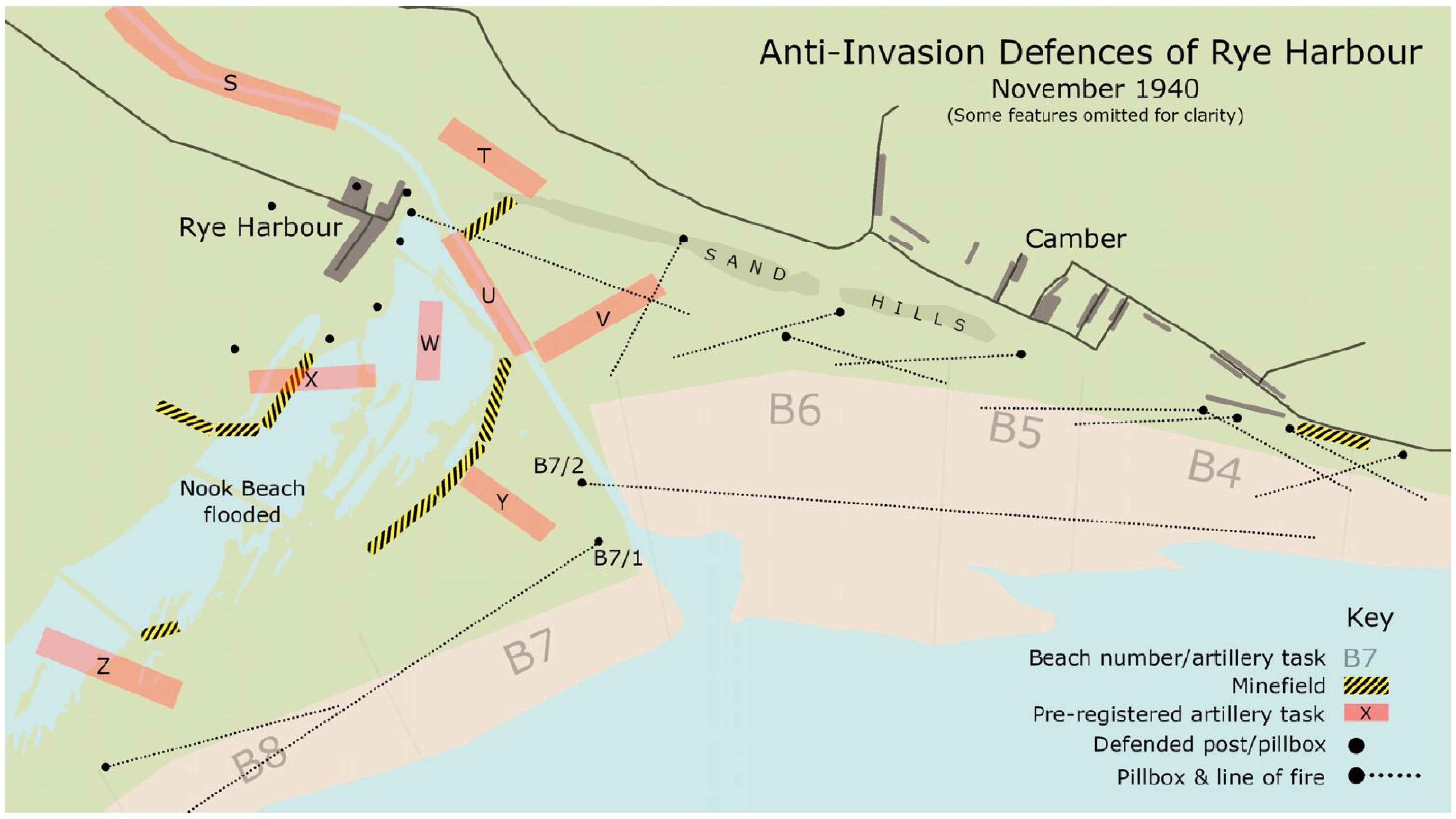
It was estimated that craft landing here would ground about 300 yards from the beach head. B7/2 has been sited perfectly, so that assaulting troops step off their transport and straight into flanking fire.

Other defence works

In addition to the terrain, we need to add in other obstacles beyond our pair of pillboxes; as seen in the map above. Minefields were laid to join pre-existing features such as flooded areas and sandhills. On the east side, barbed wire entanglements at the top of the beach protected another line of pillboxes.

Artillery was key, but in short supply; 10 field guns of First World War vintage supported the Fusiliers. In addition, some capacity from heavy artillery was also available.

To avoid hitting the defenders in their pillboxes (another reason for the double-thickness roofs), field artillery had to fire 200 yards offshore, heavy guns 500 yards. Some additional fire tasks were mapped above high water to cover gaps in the defences and deter the invader from using the Rother to bypass the beach defences.


Anti-Invasion Defences of Rye Harbour
November 1940
(Some features omitted for clarity)
Rye Harbour
Camber
SAND
HILLS
Nook Beach flooded
S
T
U
V
W
X
Y
Z
B7/2
B7/1
B6
B5
B4
B7
B8
Key
Beach number/artillery task B7
Minefield ▨
Pre-registered artillery task X
Defended post/pillbox ●
Pillbox & line of fire ●……

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Above: location of selected pillboxes and defences at Rye Harbour

Troops assaulting Camber Sands would not have an easy time. Landing 300 yards short, they would face B7/2's fire, while being within the area where field artillery could be brought down on them. Machine gun crossfire from the beachhead pillboxes and the barbed wire and minefields would add to their ordeal.

Moving westwards from B7/1, the next pillbox is 2,000 yards (1,800m) away. The long range of the guns in B7/1 therefore covers one of the "dangerous gaps" in the defence. Nook Beach was flooded to provide an obstacle, along with minefields and artillery fire. An inner line of pillboxes provided some defence in depth in the hinterland, should the network of obstacles be breached.

By mid-1941, the plan had changed and both pillboxes had been abandoned. By this time, the defending battalion held a much smaller area; an increase in artillery pieces and ammunition could defend the beaches without having to consider the safety of friendly troops. As with their design and construction, the deprecation of the pillboxes was down to the circumstances and resources available at that particular time.

Conclusion

Using archive documents, landscape analysis, experimental archaeology, and fieldwork, we've shown how there is so much more to the study of Second World War pillboxes than just posting some photographs online.

The pillboxes we've investigated at Rye Harbour have been shown to be more carefully considered than is immediately apparent. Design and placement were determined by the circumstances of a moment in time: available manpower, weapon capabilities and the landscape.

The pillboxes' perceived vulnerability is partly psychosomatic as we try to conjure up a scenario that thankfully never happened.

Building pillboxes in a landscape devoid of natural cover made them obvious targets; this was offset by the level of concrete protection and camouflage. The pillbox designers had done the best they could in the circumstances to protect the occupants, while facilitating the defensive fire plan.

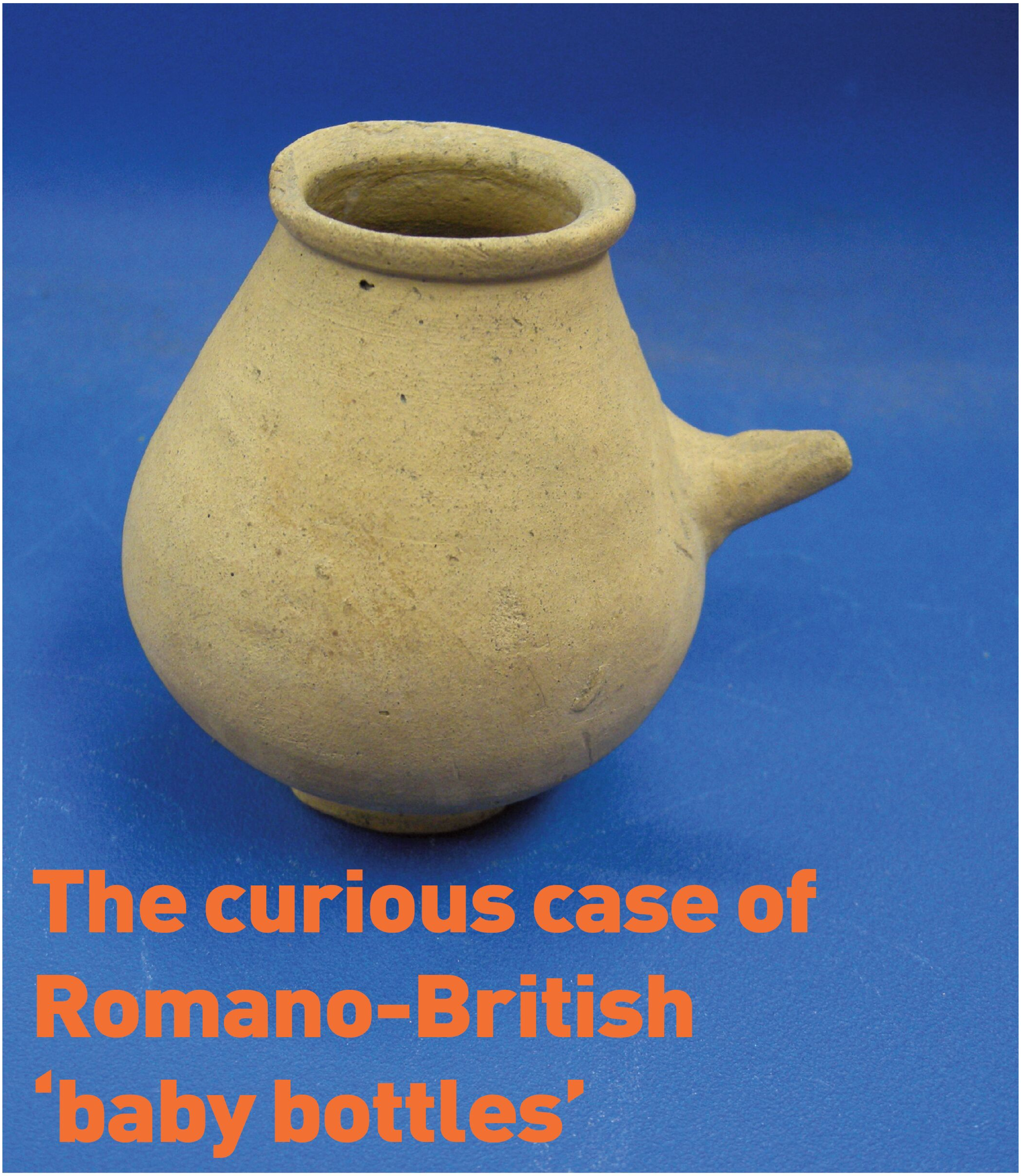
Perhaps the pillboxes would have been destroyed by German naval gunfire or dive-bombing before an invasion began, but of course, we will never know. Speculation notwithstanding, it is now clear that these pillboxes provided the best protection that was possible, guided by experienced, battle-hardened soldiers.

Given that the occupants were expected to fight to the death, one could argue that it was these unhappy circumstances, not the pillbox itself, that was the real deathtrap.

What we have done is put these solitary structures into a wider context and shown how they were just a small part of a large, meticulously planned system of defence.

When we consider the wider plan and intent of those responsible for these defence works, we perhaps change our views of their thinking and competence – and maybe change our immediate perceptions. ■

YORK MUSEUMS TRUST



The curious case of Romano-British 'baby bottles'

For over a century small roman ceramic vessels have been recovered from children's burials, these objects – or Tettine as they are referred to, have often been thought to have served as infant feeding bottles. With a new suite of scientific techniques Romano-British pottery specialist and researcher Kayt Hawkins explains how these often-overlooked vessels could have played a vital role during the early years of Roman childhood.

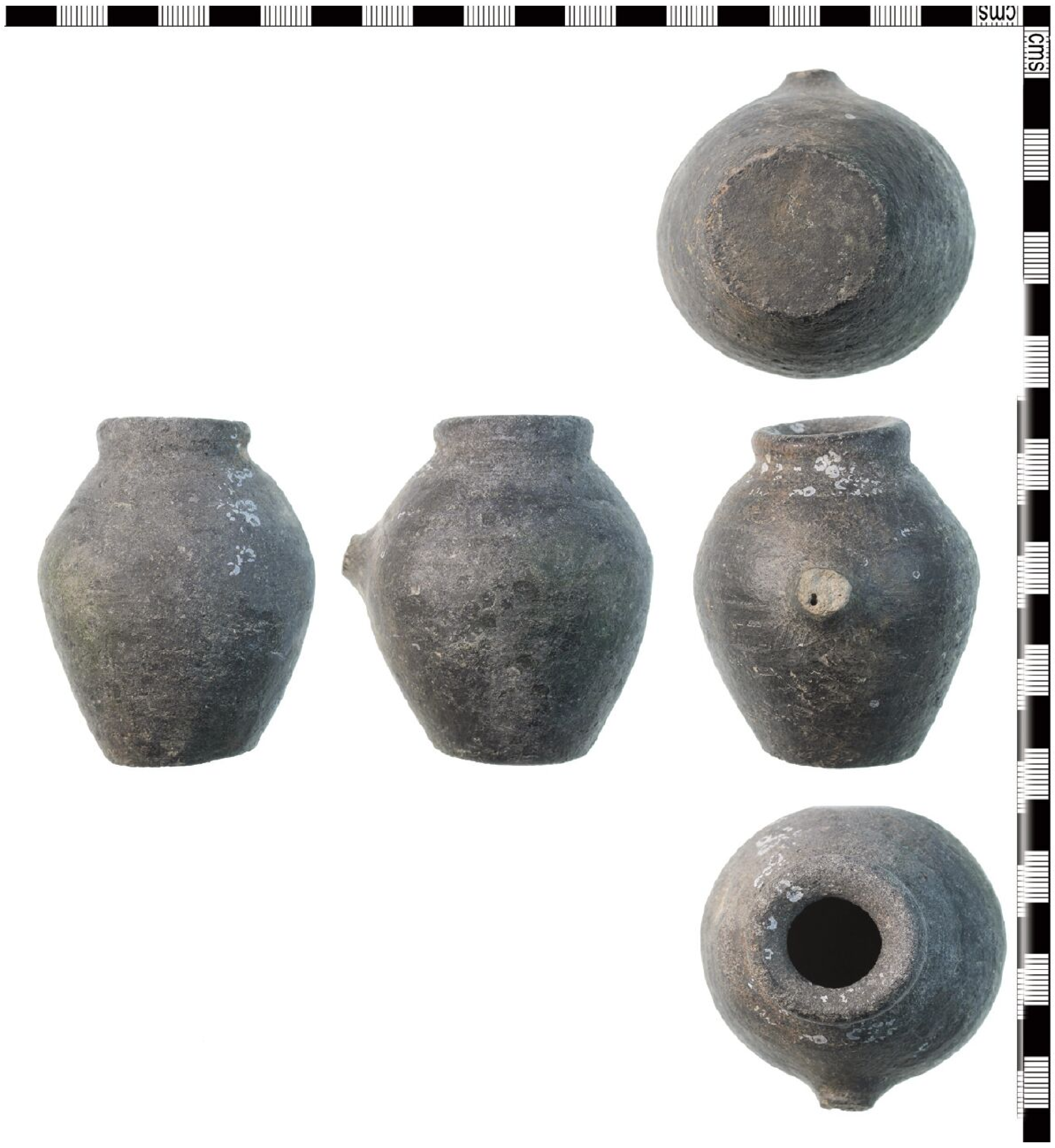
Above: Vessel H2075 (figure 1 – see p47)

As with many artefact studies, our case starts with a Victorian Antiquarian. Henry Syer Cumming, a keen collector, was one of the first men in Britain to write about a particularly curious, Roman ceramic vessel form.

His paper 'On Early Tettine' published in the *Archaeological Journal* in 1870, described these vessels, and the current known examples in Britain. The fascination was largely because most, if not all, of these vessels at the time had been recovered from burial contexts, specifically those of infants and young children.

Comparing these vessels to similar examples in France, he and his contemporaries were largely convinced of their function as infant-feeding vessels, an assumption which has held to the present day.

I first came across these vessels some 20 years ago as a junior roman pottery specialist. It was not until 2020 when I was asked to look at an assemblage from a site at Harlow in Essex, where two tettine were recovered from a small rural group of burials, that I decided to delve deeper into the arguments for, and against, their use with infants.



***Right:* Grey ware vessel recorded by the Portable Antiquities Scheme, object number PUBLIC-FF0848 (figure 3)**

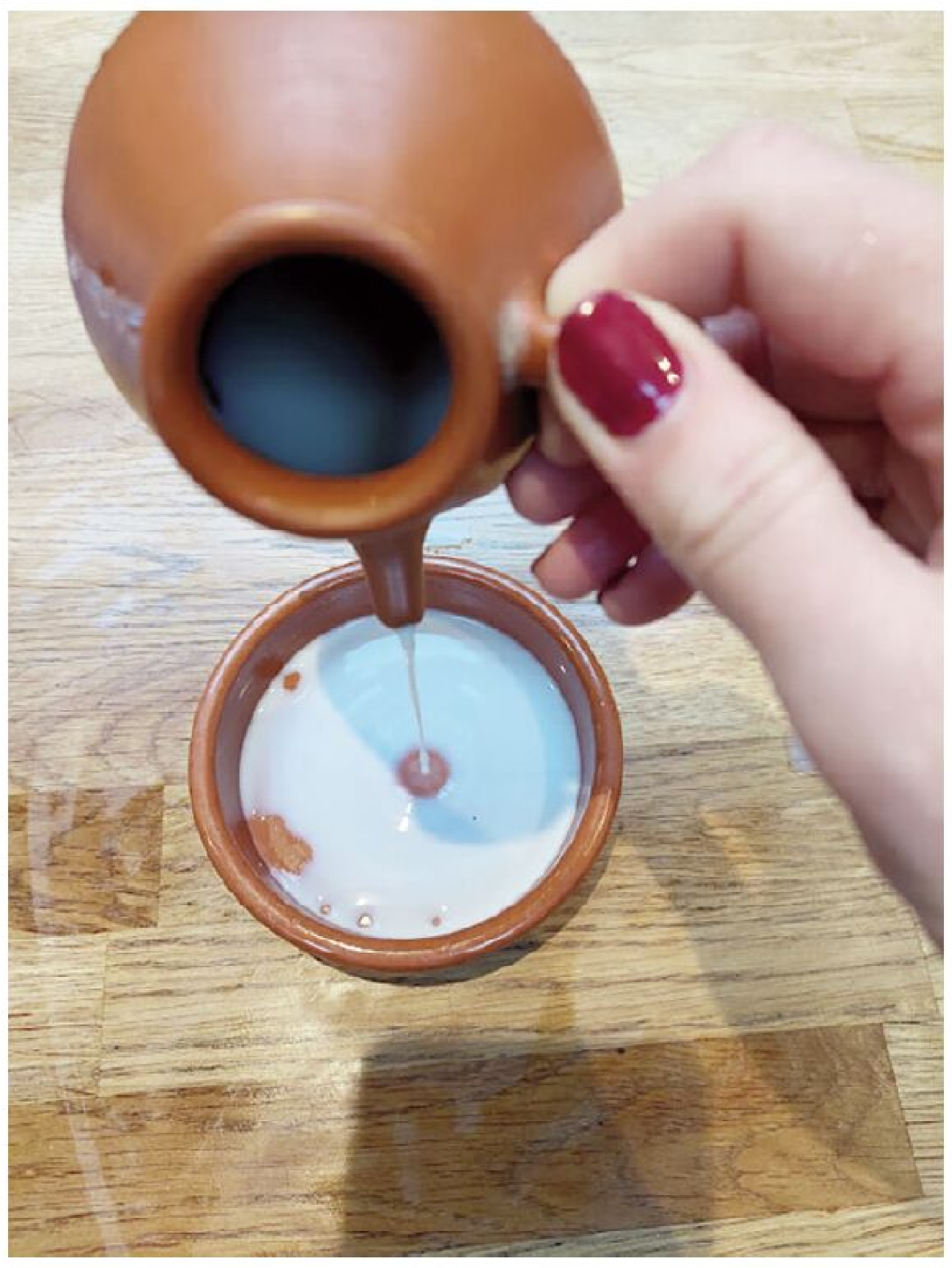
PORTABLE ANTIQUITIES SCHEME

This curiosity has now led me to embark on a PhD study at University of Leicester, where a new postgraduate course aimed at those working in the heritage sector has been established. The aim of my research is to investigate tettine, through looking at their manufacture, distribution, their context of recovery, and contents (through a programme of Organic Residue Analysis (ORA)), to reach a better understanding of this object type.

***Below:* A modern infant feeding 'sippy' cup and an adult feeding cup, two vessels typologically the same but for use with different age groups (figure 7)**

Not uncommon, and with a long history of use in the Mediterranean and central Europe, this vessel type first appears in the archaeological record in Britain in the mid to late first century CE. This pattern, therefore, offers an insight into connectivity between different communities of the Roman Empire and the adoption or adaptation of societal practices, potentially in relation to infant care practices.

I say potentially, as although the function of infant-feeding vessels has been the most assumed role, increasingly new evidence is calling this into question.



***Right:* Pouring milk through the spout of replica Samian tettina (figure 2)**

KAYT HAWKINS [2]

So, let's have a look at these vessels, and the range of alternative uses suggested by different researchers.

What is a tettina?

Quite simply it is a small, ceramic, vessel usually measuring between 60mm and 150mm in height. There is considerable variability in design, although four main body shapes are recognisable; low-slung, globular, ovoid or pear-shaped. Rim forms also vary from narrow to wide, and the vessel may have a long neck, short neck, or no neck at all (Figure 1).

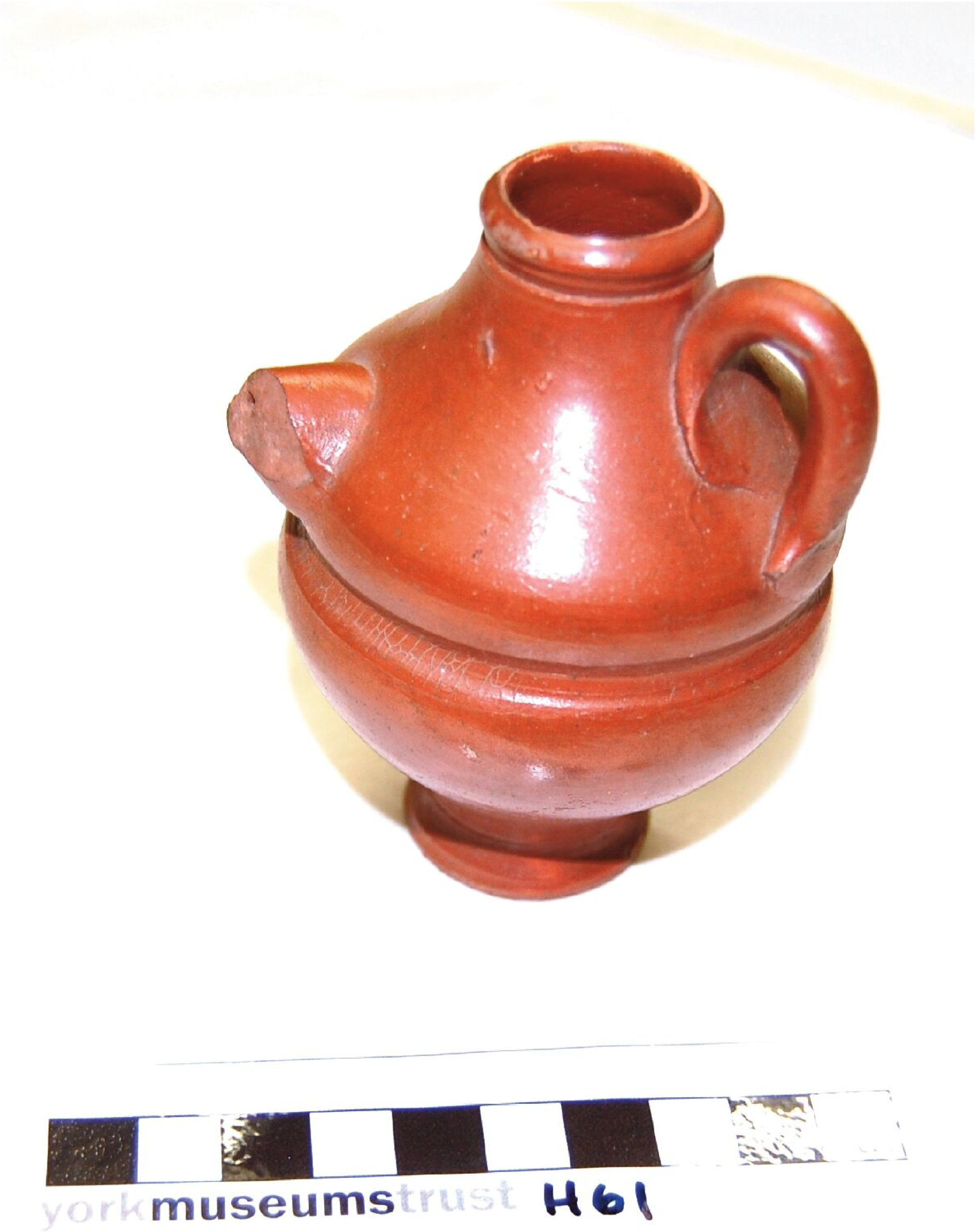
Occasionally a handle will be present, most frequently positioned at right angles to the spout, suitable for pouring with the right hand (Figure 2). The spout is, however, the defining characteristic, positioned at the mid-point of the vessel or just above or below, usually angled upwards, with a very narrow bore hole (Figure 3).

Most of the British examples are locally made, with imported vessels most commonly arriving from the Terra Sigillata industries in Gaul, of which there are two types, one with a distinctive groove around the body (Figure 4). A single vessel in Moselkeramik (from Trier) was until recently on display at the Museum of London.

Decoration, other than all over slip, is rare although one complete vessel from Colchester has barbotine decoration (Figure 5) and moulded decoration, in the form of faces and foliage, have been identified at several sites in London.

An initial survey of publications, online collections and museum displays has so far revealed in the region of 120 ceramic vessels, this survey work is currently ongoing, and more vessels are no doubt yet to be tracked down.

Although their context of recovery,



Right: Samian vessel H61 (figure 4)

YORK MUSEUMS TRUST

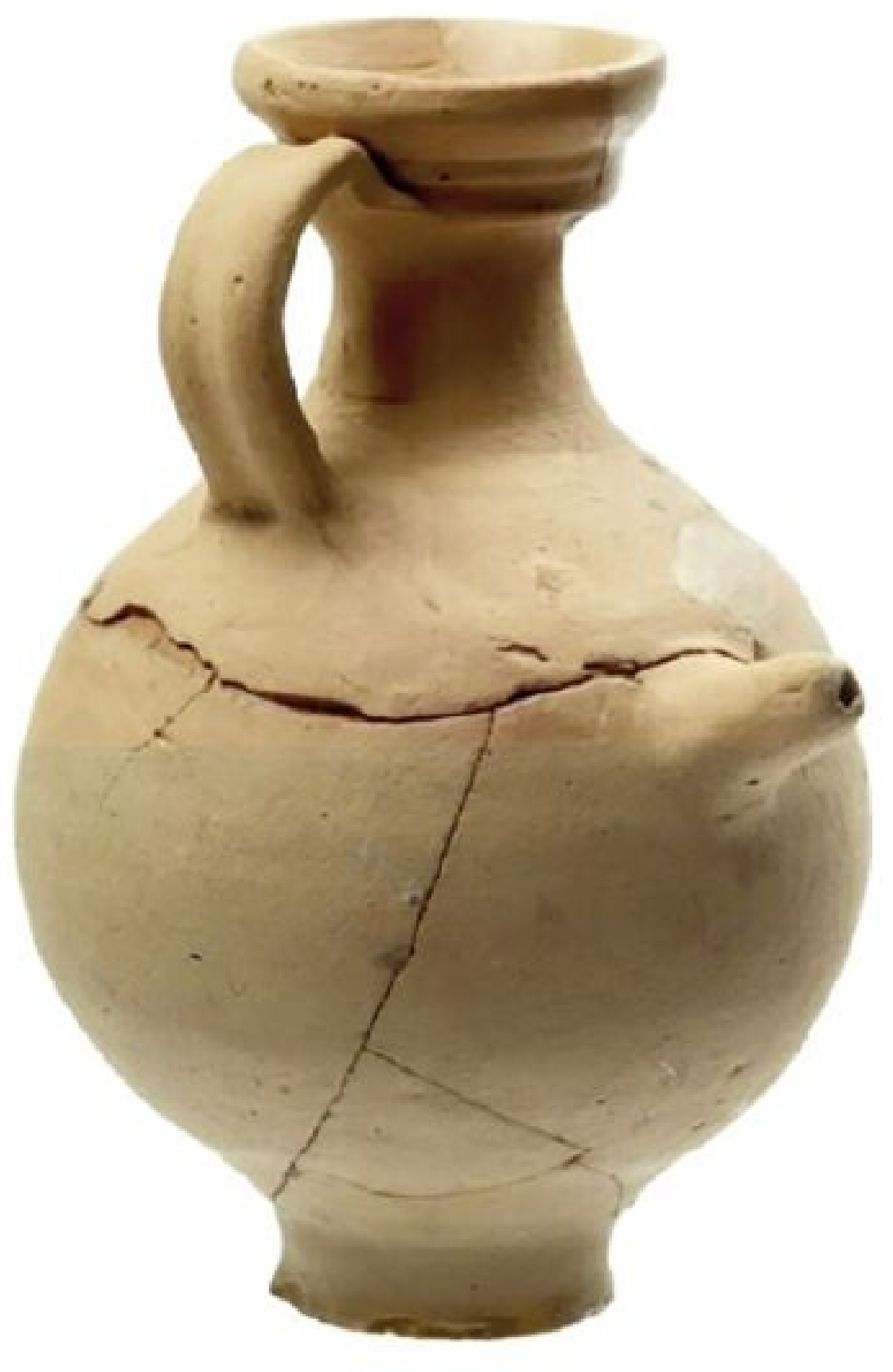
within burial deposits, means many vessels are found intact, this is also potentially distorting the wider picture. Where they are fragmented, it is only the presence of the spout that enables identification as a tettina; without this element, shards are understandably recorded and interpreted as small beakers or cups.

In terms of how these vessels may have been used to feed infants there are two principal options; first as a replacement for breastfeeding or secondly, as part of the weaning process, where infants are introduced to new foodstuffs.

If we tackle breastfeeding replacement first, the first question is surely – why? Infancy was precarious for roman babies, and breastmilk offered the best chance of survival due to being uniquely suited to human infants. Roman physicians placed great importance on maternal breastfeeding – the demands of which often ran counter to other, societal expectations of Roman women, as maternal breastfeeding was linked to the concept of 'good' or 'virtuous' mothering.

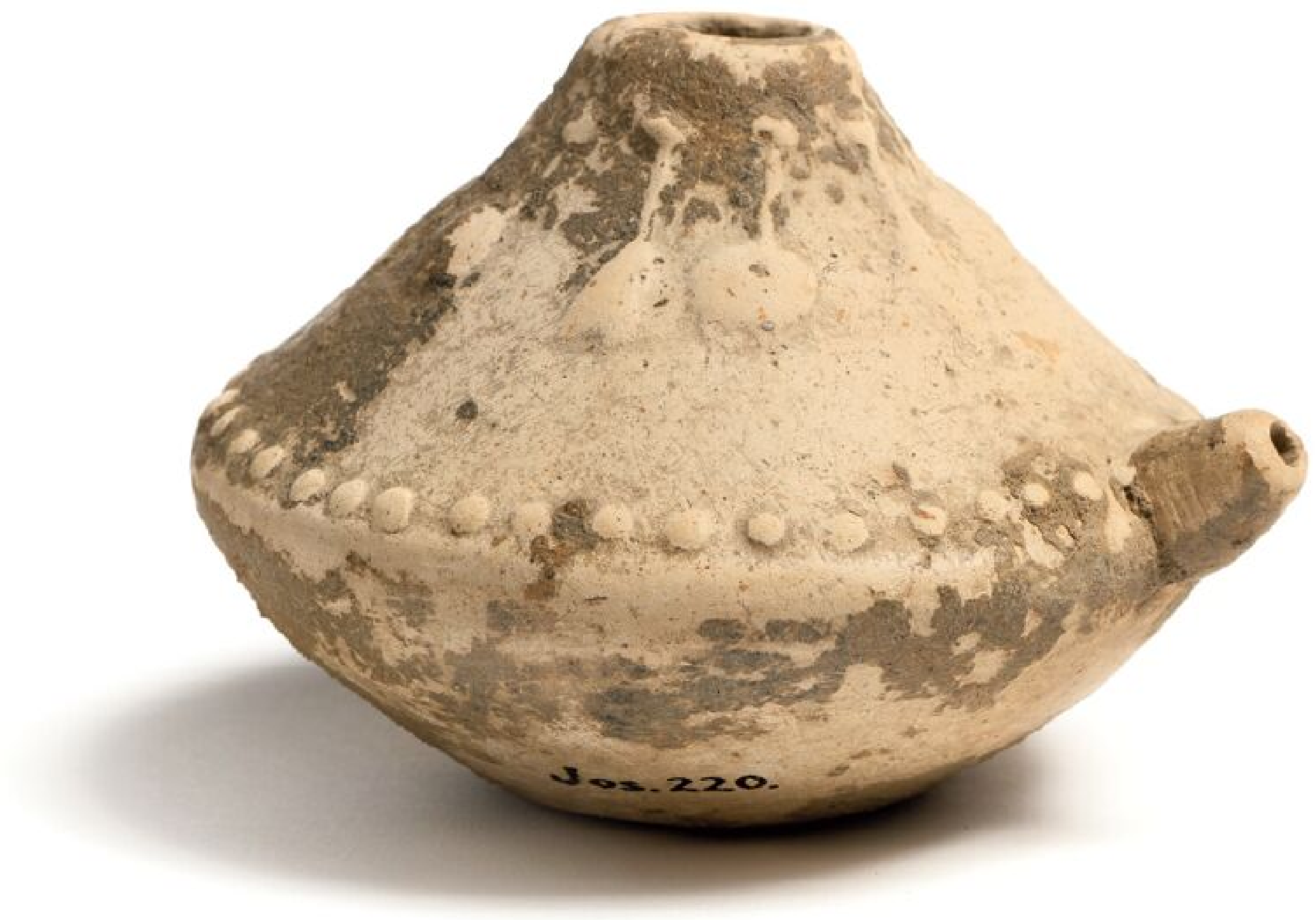
There are as yet no known visual representations of roman bottle-feeding, and many representations of breastfeeding are symbolic or allegorical and refer to this ideal (Figure 6). The same Roman medical writers could also be highly dismissive about the role of wet nurses, the other option for providing a baby with breastmilk if the mother would not, or could not, do so herself.

There are instances when a baby may not be able to breastfeed, itself a complex process requiring the co-ordination of a great many muscles in the cheeks, lips and tongue, that can be impacted by various neurological and congenital conditions.



Right: Tettina from London, similar in design to a flagon. Museum of London object ID 2859 figure 8)

MUSEUM OF LONDON



Below: Decorated tettina , object number COLEM: JOS.220 (figure 5)

COLCHESTER MUSEUMS, IMAGE CREDIT DOUGLAS ATFIELD

In such instances, providing a way to feed animal milks to a baby would have been the last resort, and clay vessels not the only option; perforated animal horns were used in the medieval period and there is no reason to doubt that they may have also been used at other times.

Weaning, the time at which new foodstuffs are gradually introduced to infants to replace breast milk, was also a dangerous time for these roman children. Soranus of Ephesus, a Greek physician, writing in the second century, recommended ceasing breastfeeding when the child was around the age of two, having started to introduce other foods when they cut their first tooth, usually around six months of age.

Recent isotope analysis studies on human remains of roman populations are showing that this advice seems to have been in part followed, although with some variations between rural and urban areas, and in the provinces further away from Rome.

So, could these spouted vessels have been a way of introducing the watered-down wine or 'soup' Soranus also recommended as part of the weaning diet?

Weaning or feeding?

Organic Residue Analysis (ORA) is proving a valuable tool in this quest for understanding. This process requires the removal of a small amount of the inner surface of the clay body, to remove contamination, then a small amount of the clay body removed as a powder for analysis of any organic residues from animal or plant foodstuffs that may have been absorbed during the use of the vessel.

A comprehensive study of tettine from Gaul which included a programme of ORA has shown a wide and diverse variety of contents, primarily animal fats, but also evidence of fermented fruit, plant resins although surprisingly, given their assumed role, little diary.

An initial ORA study undertaken prior to embarking on this PhD research, of some vessels in the collections of Colchester Museums, York Museums and the Museum of London, also revealed little evidence of diary. Collectively, the evidence is increasingly questioning a function related to infant nutrition and pointing towards perhaps a more therapeutic use.

There are a great many medical recipes surviving from antiquity, and in terms of therapeutic use, these vessels would be well placed for topical application of remedies, and not just for infants. Although mainly associated with infants in burial contexts, these vessels do also occur at low numbers on military sites, which has led to the suggestion that they may have had a role in invalid-feeding rather than infant-feeding.

It is possible to think of many instances, such as soldiers recovering from facial injury where these vessels may have been useful. However, to assume this was a primary function also ignores the possibility of women and children at these locations, their presence having been proven by a range of material, literary and epigraphic evidence.

Looking at the modern equipment used for both infant and adult feeding, it is easy to see how typologically similar these objects are, and how the Roman vessels considered here could have performed multiple uses and adapted depending on what was required (Figure 7).

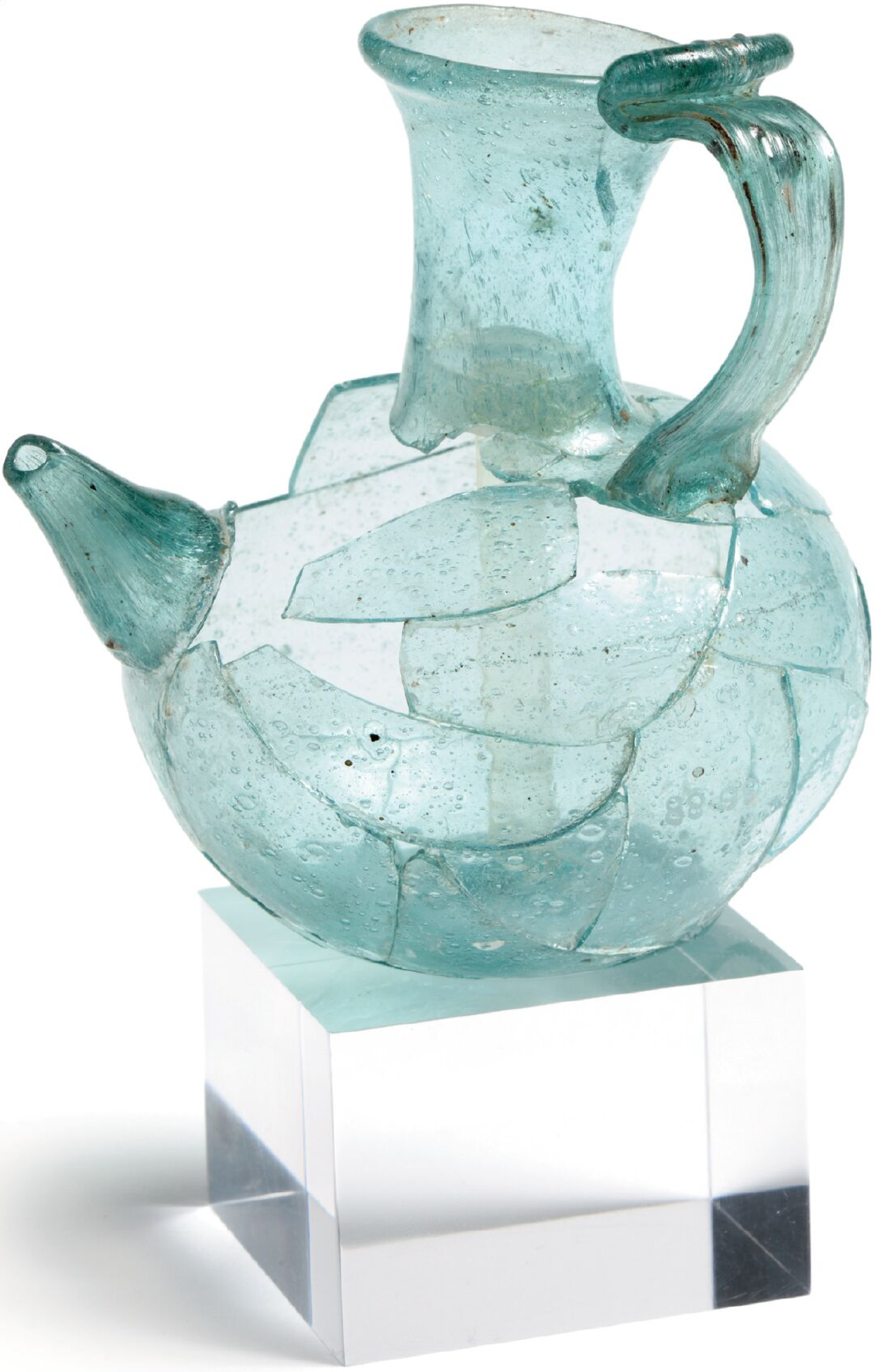
Other possible uses such as their use as lamp-fillers, breast-pumps, the application of slip to decorate pottery, or even as specialised torches for use in metalworking have all been suggested; but despite in some cases experimental work to show they could function in this way (for example as breast pumps), the current evidence is not compelling enough to prove that tettine had a wider multipurpose use.

For example, ORA does not detect human breast milk, the lipid traces are not strong enough to indicate filling with oil or liquid fats for lamp filling and evidence of burning would be expected around the spout if they were used as specialist tools in metalworking.

I have so far resisted mentioning the word ritual, however there is a potential phallic symbolism to these vessels. Phallic imagery, as a protective symbol to ward off evil and bring good fortune is well attested and was certainly considered appropriate for the protection of children.

Phallic imagery also occurs on other ceramic forms used for drinking, such as beakers and cups, albeit relatively rarely. A tettina from the roman town of Aquincum, in the roman province of Pannonia, now situated in Budapest, Hungary leaves little to the imagination, having had two small pieces of clay applied to the vessel at either side of the base of the spout to give the impression of testes and was clearly intended to be phallic symbolism.

Although small in size, tettine are generally not considered miniatures themselves, although occasionally in form they do seem to be replicating other forms, as with one example from London which does look like a ring-



Right: Glass spouted bottle, object number COLEM:1898.88 (figure 9)

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neck flagon (Figure 8).

Flagons as a vessel class, are usually taken as an indicator for the adoption of Roman foodways and rarely form a significant component of rural domestic assemblages.

In a rural context, they are more common in funerary deposits, forming part of a relatively restricted range of table wares that occur in early Romano-British graves accompanying deceased individuals.

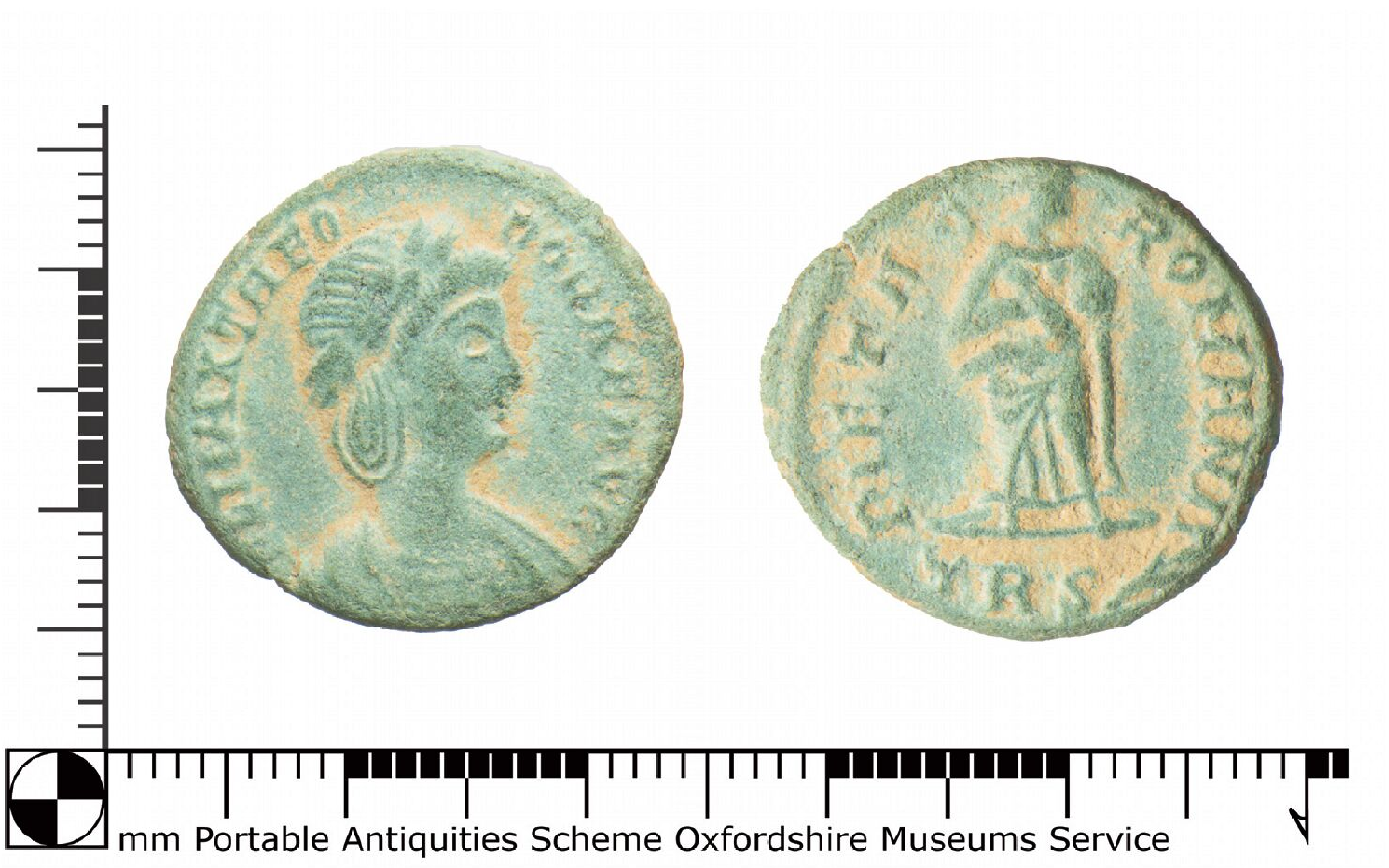
When other accessory vessels or objects are present alongside a tettine, these often show affinities with either Gaul or the Rhineland. A burial of a young child at Cirencester shows this clearly, where a locally made tettina and an enamelled cockerel figurine associated with both the military and the Rhineland, had been placed to accompany a child aged two to three years old.

An elaborate burial from Colchester, referred to as the 'Colchester Child's Burial' includes a single tettina with a vast range of other objects including unguent vessels and pipeclay figurines. A spouted vessel form made in glass has also been suggested as a possible infant-feeding bottle, however, examples of this glass type from Roman Britain are rare. Three glass examples have been published, two from Colchester (Figure 9) and one from an infant's grave at Lankhills, Winchester, with the suggestion that this vessel too may well have come from northern Gaul or the Rhineland, possibly a personal possession of the child's parents which was then placed with the child.

As already mentioned, tettine have historically been rare finds outside of funerary contexts, occurring in low numbers at a range of sites from small rural, burial groups to larger urban cemeteries.

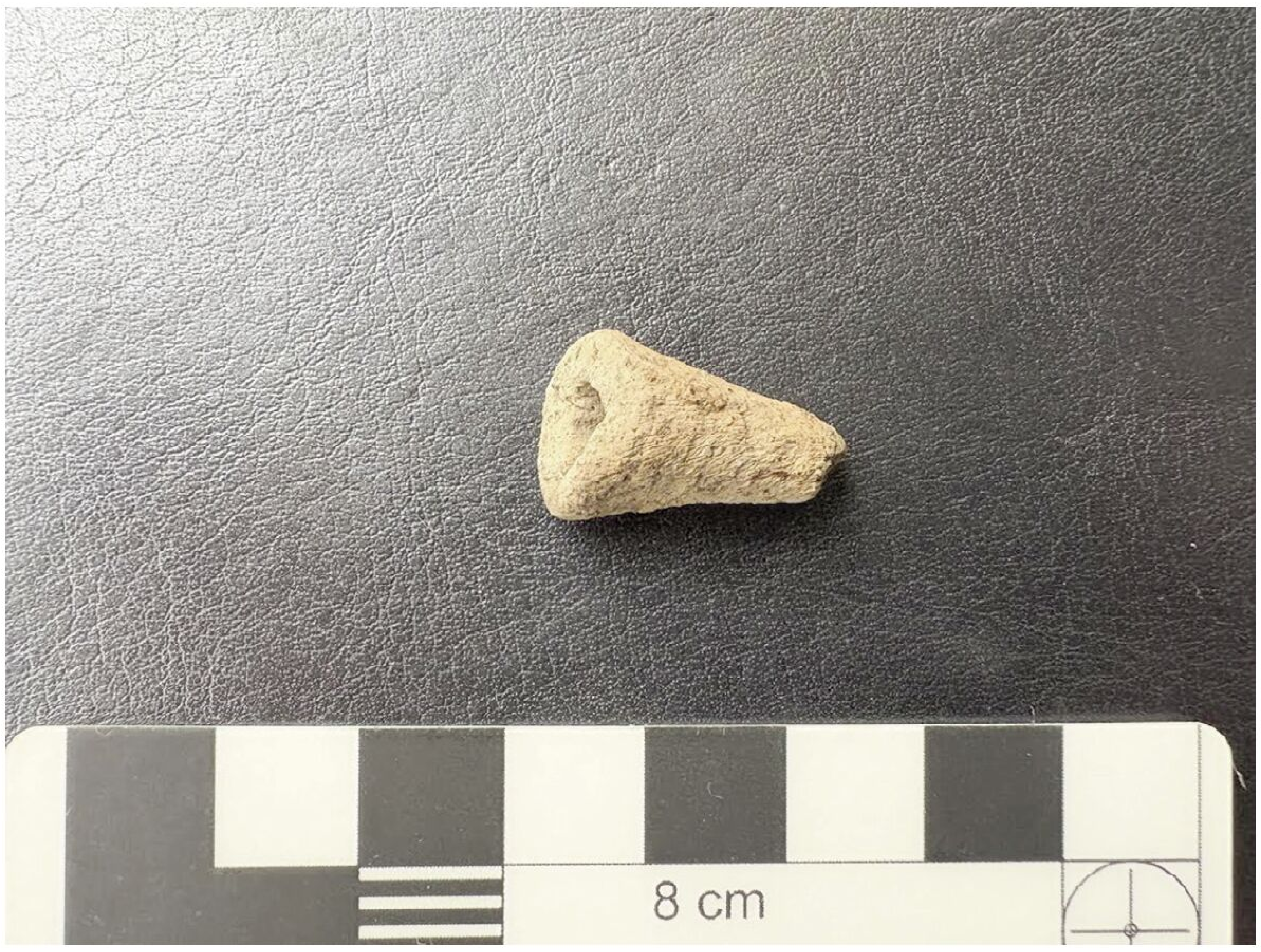
These larger cemeteries have surprisingly few, for example at Pepper Hill in Kent, where just five were recorded. Yet they are rare from urban domestic contexts, and from villa sites. At Yewden villa, Hambeldon, where 97 infant burials have been recorded, just one single tettine spout has been identified.

The placement of tettine in graves, and their subsequent survival, has no doubt resulted in so many being recorded, and is also likely responsible for skewing the picture of deposition.



PORTABLE ANTIQUITIES SCHEME

Above: Roman coin showing the Empress Theodora and the deity Pietas, carrying an infant at her breast. Portable Antiquities Scheme, object number OXONEC1C26, CC BY 4.0 (figure 6)



HENEB: THE TRUST FOR WELSH ARCHAEOLOGY

Right: Ceramic tettina spout fragment from Flintshire, Wales; the object is owned by Flintshire County Council

To illustrate this, recently a single spout fragment was identified within a secure context within an early Roman round house in Flintshire (Figure 10), an area with previously no known occurrences. It is easy to see how these small, rather underwhelming shards, may be overlooked, and left to languish for years unidentified in archive boxes.

This study is partly the result of what has been a steadily increasing interest in archaeology of the study of the material culture of children, which is constantly leading to new discoveries and ideas around many aspects of childcare in the past.

Tettine are wonderfully tactile objects and are proving endlessly fascinating, to this researcher at least, who is always keen to hear of more discoveries of these vessels. ■

Can you help?

As part of her research Kayt Hawkins is actively looking for organisations that have examples of tettine vessels in their archaeological collections.

For further information, please contact kah70@leicester.ac.uk

my archaeology

A senior lecturer, University of York, and newly elected trustee of the Council for British Archaeology, shares his unusual journey into the archaeological sector

Guy Schofield

At the top of the search results for me on Google, I notice it's just started to describe me as an archaeologist. Although I've always been interested in archaeology, I've had quite an unusual career path to get to a place where I can combine my various interests in art, technology, public participation, and heritage.

As a child, art was my passion but there wasn't a visible art scene where I was growing up in Blackpool. I was fascinated by film visual effects and was a big fan of the stop motion animation dinosaur films of Ray Harryhausen.

I was also an admirer of another set of pioneering visual artists. Their names are unknown and their works date back to tens of thousands of years ago, but they're no less important. I grew up visiting the Palaeolithic cave paintings in the southwest of France, at sites like Lascaux, which left a lasting impression on my artistic imagination. It was a dream come true when I was offered the chance to bring my own prehistoric scenes to life, employing twenty-first century technology.

I studied Fine Arts at university, but when it came to pursuing a PhD, there wasn't a lot of funding in the arts so I ended up getting the same project funded in Computer Science. It was a case of being in the right place at the right time. Newcastle University was establishing CultureLab, a new research institute for digital creative practice, offering me the opportunity to develop my skills in digital media and learn more about interactive design.

I find interactivity is an often misunderstood concept in the heritage sector. For me, it should involve a genuine exchange and reactive interplay between the technology and the user, and I was fortunate that CultureLab had a great relationship with local museums who were really open to being playful and experimental.

A heritage project which helped cement my artistic practice in interactive technology was called Time Telescope. While based at CultureLab, I was also working in a freelance capacity as an artist within the learning team at the Baltic Centre for Contemporary Art.

Above: Guy trying on a headdress made from a modified red deer skull

GUY SCHOFIELD

The Baltic had a remit to use digital technology in some way to engage young people in the history of the local area. We built an interactive telescope through which you could view Newcastle at five points in the past, with the most recent being the building of the Tyne Bridge in the early twentieth century, and going back to the swamps and giant amphibians of the Carboniferous period.

The young people were involved in every aspect of designing and building the telescope, including the electronics, programming, and fabrication, as well as researching and reconstructing the scenes of the past.

The installation was viewed by more than 10,000 people, but what I'm most proud of is co-creating something of professional quality which resonated with a wider audience and that had also genuinely captured the ideas and voices of the participants.

There's something really powerful about positioning yourself as an equal with young people, rather than as an authority figure. My first commission as an artist was with Tullie House Museum in Carlisle where I was working with young offenders to reinterpret a collection of Staffordshire pottery.

It was a hard sell and, frankly, a baptism of fire for someone new to participatory artwork, but it opened my eyes to the potential that co-creation offers to transform the way others see the world around them and how they see themselves.

I try to ensure that my engagement empowers the participants I work with and that there is genuine collaboration as we explore a topic and create something together. I don't have a formal background in archaeology or heritage, so with a lot of the projects that I work on, I'm encountering the subject for the first time along with the participants. I think it helps me to relate to their viewpoint and, working together, we can bring a fresh pair of eyes to the past.

I don't consider myself a specialist; I'm a complete generalist. I've got a broad practice at the intersection of art and technology, spanning computer graphics, film making, animation, storytelling, and more. This has served me well in finding new and exciting opportunities for practice-led research, but I don't really fit in one box in the academic world.

I first came to the University of York as a lecturer in the Film and TV department, but felt out of place working alongside people with highly specialised industry experience.

When I started to take on freelance projects again, I found it was my creative approach to heritage that opened new doors. It's been very exciting to come in as a relative outsider to find such an energetic and inclusive field. Archaeologists are very open-minded and curious about other disciplines, and I've been overwhelmed by the generosity of people like Nicky Milner, Andy Woods, Jess Bates, and Neil Redfern.

I've now joined the Archaeology department at York, which has been incredibly welcoming and seems to value the different perspective I bring to the discipline. I've experienced imposter syndrome far less here than in other areas of academia.

I hadn't long been in post when the head of department, Nicky Milner, approached me about creating a digital artwork to accompany an exhibition on the archaeology of Star Carr at the Yorkshire Museum. This Mesolithic site is world renowned for incredibly well-preserved organic artefacts, including the oldest complete bow found in the world and the enigmatic headdresses modified from red deer skulls.

The challenge she came to me with is that many people don't have a sense of what the world was like at this time. We know these objects were made by people like us, but it's difficult to imagine a lifestyle and an environment so different to ours today. Like the artists of Lascaux Cave, I was trying to paint a realistic, detailed, and vivid picture of the prehistoric past.

The museum and the university were really open about what they wanted and we had plenty of conversations about what the artwork would look like. We settled on the idea of an interactive digital mural. What was most important in my mind was that there would be a level of complexity in what members of the public would see.

Early on, we knew we wanted to design something where it would be almost infinitely variable. The Yorkshire Museum has a lot of regular and repeat visitors and it meant that, if you went several times, we wanted to ensure you'd see something different every time.

The digital mural recreates the Mesolithic settlement, using artificial intelligence and performance capture technology to make the reconstruction feel like a living place. The installation changes between day and night, has seasonal cycles and different weather conditions. Deer are commonly seen in the woods, with wolves and bears more rarely observed.

Using motion capture technology, we recorded re-enactors doing activities such as flint knapping and leather tanning so we could apply accurate movements to the digital characters inhabiting the settlement.

A motion sensor near the mural is used to detect visitor motions, and animals and birds are programmed to react to quick and sudden movements.

The exhibition has been incredibly well received, appealing to both adults and children, many of whom weren't aware of the site and this period of prehistory. I've loved hearing stories of visitors sitting to watch it for long stretches of time, and going back on different days to see it time and again.

It was incredibly exciting for me to work so closely with world-leading experts on this project. I didn't know anything about the Mesolithic at the start of the project but, through this close collaboration and our different expertises, I believe we've built something really compelling.

I've also learned a huge amount from working on the video game technology used in this mural, and I think it's going to become really powerful in the next few years. Unlike conventional film making or computer graphic reconstruction where you have to invest a considerable amount of time and resources upfront in planning, this type of responsive technology is far quicker and more iterative to implement.

The user experience is so much more immersive and interactive, with the chance to inhabit and shape the virtual environment and explore non-linear narratives. It's becoming much more cost-effective and accessible and I've enjoyed starting to use it in collaborative projects with young people.

I've been working with a primary school to explore the history of lost mining communities in the north east of England, and they've built their own video game which is available to play online. Addison was one of over 120 pit villages in County Durham that was abandoned and demolished after the collieries closed. Once home to hundreds of people, it's now a woodland and nature reserve.

The school children designed their characters for the game out of modelling clay, we scanned these using photogrammetry on mobile phones, and then imported and animated them in a virtual environment.

What has been fascinating is that the children have a surprisingly sophisticated understanding of the visual language, gameplay, character perspectives, and narrative structures of video games. It's evidently a medium that is familiar and intuitive to them, and I've been adapting my undergraduate computer graphics lectures to try and keep up with these savvy 10-year-olds.

There's now so many young people coming through into archaeology who are also interested in these storytelling technologies. At York, I teach a module on archaeogaming, exploring the use of archaeology in video games. I've taught several students who were very enthusiastic about archaeology but hadn't tried their hand at digital storytelling technologies. They created a range of really impressive games in different styles and are interested in building careers that combine video game production and archaeology.

I think it's going to be very interesting as archaeologists like them start to move into the creative industries and into the heritage sector, and to see how this will influence the way that stories are told through digitally mediated experiences.

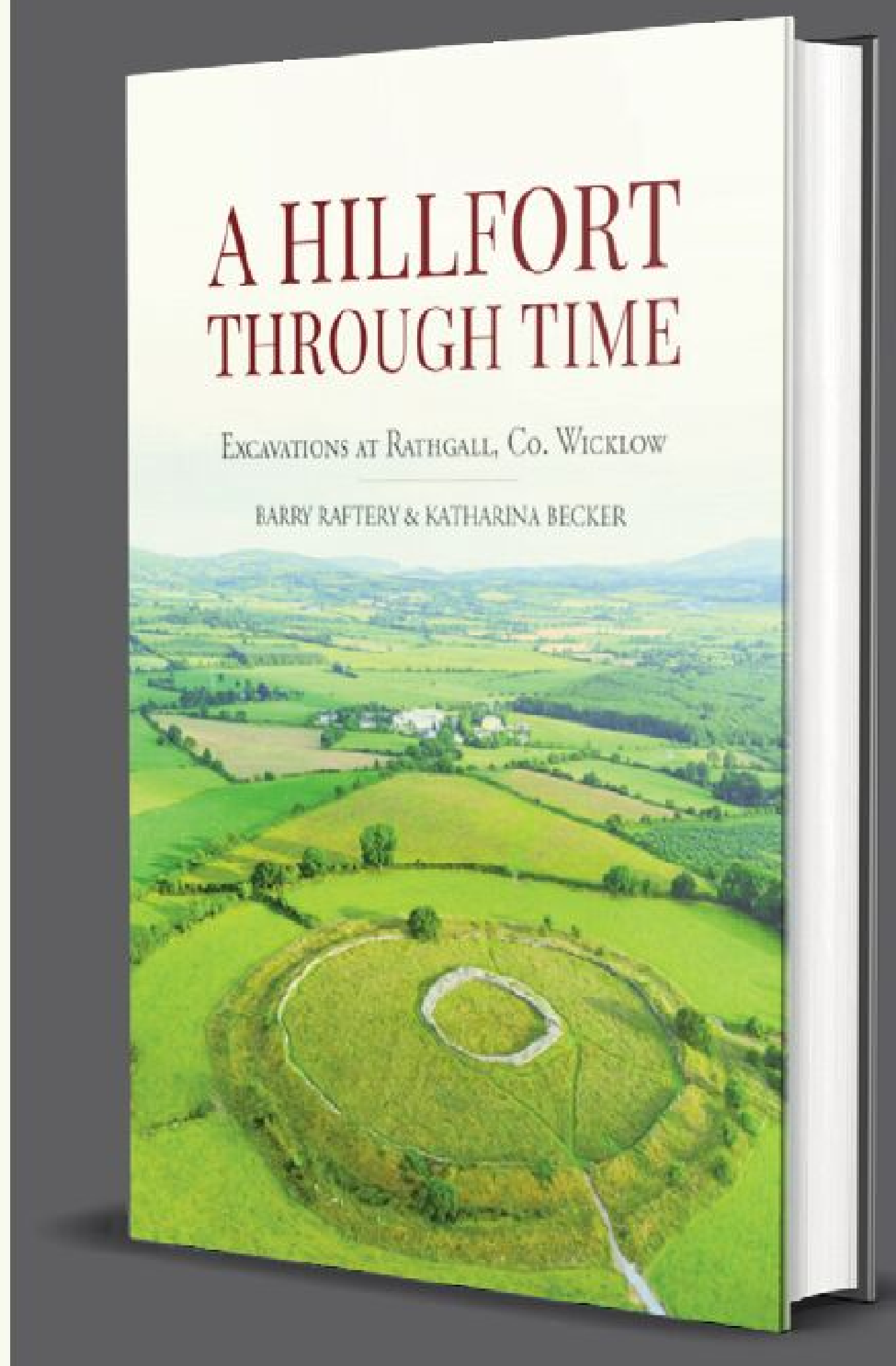
As a newly elected trustee of the Council for British Archaeology (CBA), I'm really excited to use my expertise to develop more participatory approaches to digital engagement. I think the CBA has a really clear voice and great digital platforms for communicating in more interactive ways with members, as well as audiences new to the organisation and archaeology.

I first came into contact with the CBA a few years ago through my involvement in a research project led by Marta Herrero at the University of York, which explored engagement with audiences new to archaeology. 'Your Heritage, Your Story' was a co-creation project with people who had immigrated to the UK, offering new and personal perspectives on heritage and archaeology through an interactive documentary and cinematic virtual reality.

This project gave me a good insight into the Council's vision of a socially engaged, deeply participatory archaeology for an increasingly diverse audience.

I feel that archaeologists sell themselves short on their storytelling abilities, not realising how fascinating their work is, and how to convey it in a way that will have broad appeal.

In spite of how Google labels me, I still consider myself an enthusiast and a lay person in the archaeological sector but, in that, lies my strength. I think I can play a role in telling archaeological stories in new and innovative ways and help create real human connections in an increasingly digital world. ■


A HILLFORT
THROUGH TIME
Excavations at Rathgall, Co. Wicklow
BARRY RAFTERY & KATHARINA BECKER

A HILLFORT
THROUGH TIME

RATHGALL HILLFORT is perhaps one of the most important, iconic and well-known monuments in Irish archaeology. This publication presents the excavations at Rathgall, Co. Wicklow, conducted by Barry Raftery, formerly Professor of Celtic Archaeology at University College Dublin. Although Raftery published aspects of the site primarily in the 1970s, he passed away before he could finalise a comprehensive account. This volume presents his work alongside new data from post-excavation analysis conducted between 2010 and 2013. Raftery's original voice is preserved, with editorial comments adding clarification where necessary. His draft text is juxtaposed with discussions of alternative scenarios that emerged from recent analyses, including finalised site drawings and photographs.

'The present volume assuredly joins Barry's other great contributions to Ireland's archaeology, from his studies of La Téne material culture in the 1980s by way of his leadership of wetland investigations to Pagan Celtic Ireland—in sum, a remarkable legacy of which his family can be justifiably proud. Dr Katharina Becker and the contributors who have brought these important studies on the hillfort at Rathgall to fruition are to be applauded.'

Ian Ralston, Abercromby Professor Emeritus of Archaeology,
University of Edinburgh

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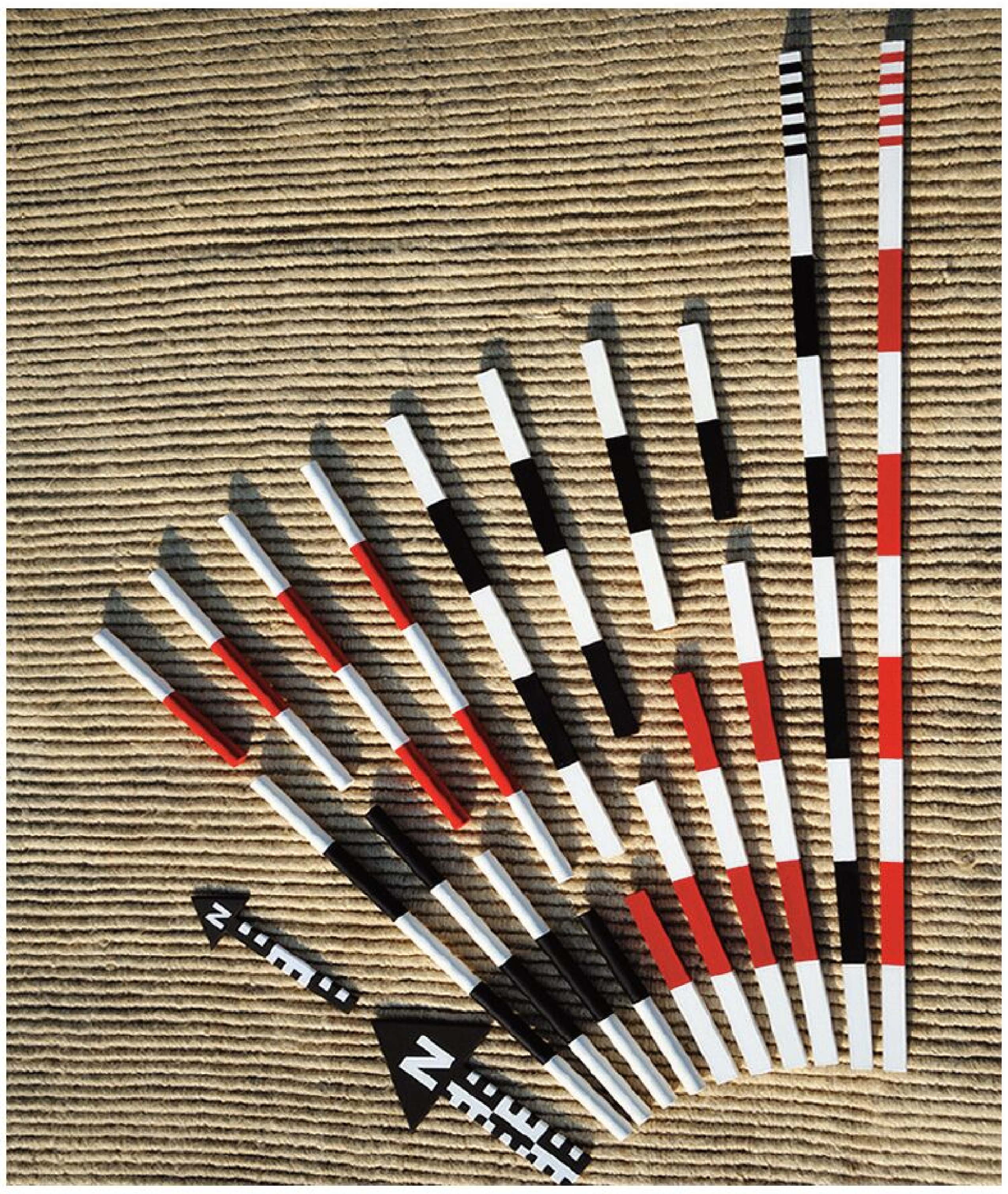

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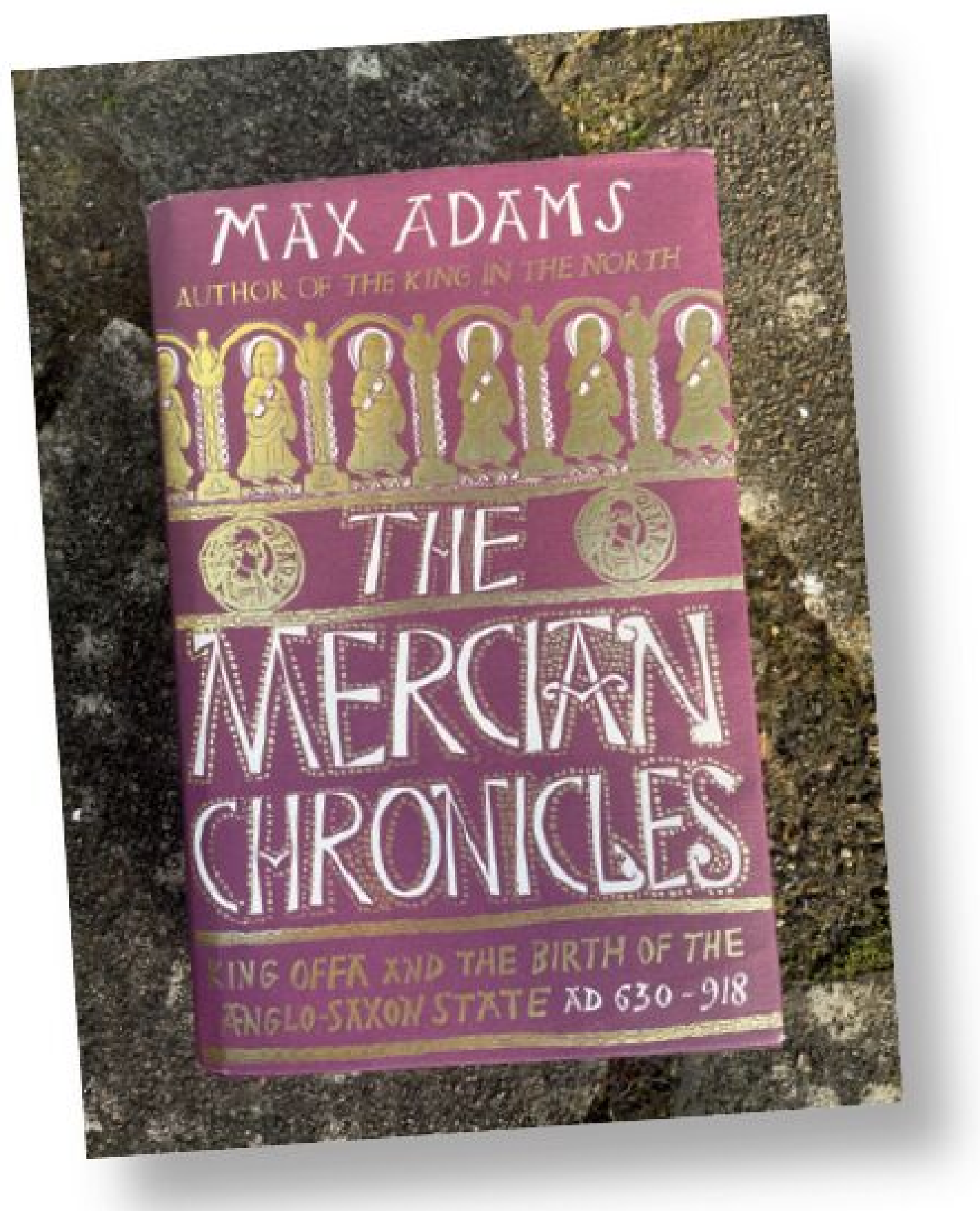

MAX ADAMS
AUTHOR OF THE KING IN THE NORTH
THE MERCIAN CHRONICLES
KING OFFA AND THE BIRTH OF THE ANGLO-SAXON STATE AD 630-918

The Mercian Chronicles

Reviewed by Liberty Spicer Hinze

Writing a history of the kingdom of Mercia presents an author with a challenge not faced when tackling a history of Wessex or Northumbria; Mercia has no narrative chronicle of its own to fall back on. As a result, the kingdom of Mercia is somewhat of an enigma; it dominates the eighth century yet is often defined more by what it is not, than what it is, as a negative space in the centre of England.

Yet, Max Adams, author of multiple acclaimed histories including *Ælfred's Britain* and *The King in the North*, has taken on the task of bringing Mercia into the light in his new book *The Mercian Chronicles*.

Adams, as an archaeologist himself, is no stranger to interpreting the past through sources other than writing. Throughout this book, he utilises new findings from excavations, as well as numismatics and architecture, to support evidence from contemporary poets and record keepers. What emerges from this research is a portrait of a kingdom that is self-assured, bold, and powerful enough to negotiate with Charlemagne's Francia as an equal.

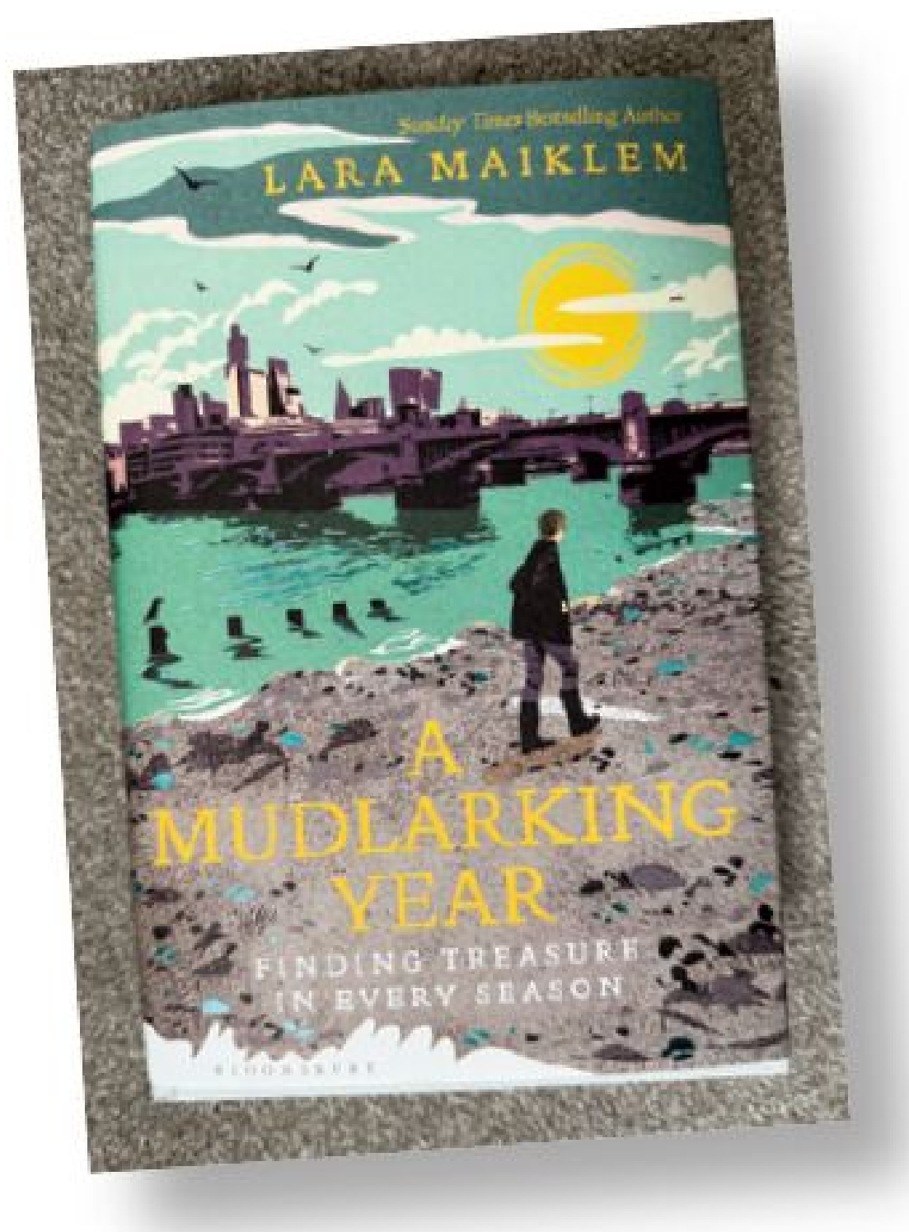
Adams' writing style does the history justice. The reader is provided with detailed timelines ('chronographies') and maps that help to situate events in place and time. We are also let into Adams' thought processes, invited to follow along as he presents his arguments and interpretations with explicit references to his sources and, consequently, we gain a nuanced view of early medieval history.

Adams also pays close attention to details too often left in the margins, tackling the how just as deftly as the why. Large-scale Mercian projects such as Offa's Dyke are explained not just through their purpose, but also their process. Adams describes how the landscape, and the labourers who worked it, would have had to be negotiated with just as closely as the Welsh kings. Throughout this book, the ordinary Mercians living outside of the royal court are never forgotten. As such, Adams provides a unique perspective on the mechanisms of politics and power, and does not shy away from drawing connections between the past and the present.

The Mercian Chronicles successfully lives up to its title, providing a chronological account of the kingdom, but with far more attention to structures of control and political geographies than could be expressed by contemporary medieval historians. As a result we are treated to a comprehensive view of Mercia at the height of its power.

However, the focus on how Mercia retained this dominance does mean that the description of the decline of the kingdom in the ninth century is somewhat rushed. Yet, this is a small price to pay for such an otherwise comprehensive book, which is sure to become a classic on one of the most neglected yet fascinating parts of medieval history.

By Lara Maiklem
Amberley Press
335 pp hb
ISBN 9781526660756
£22



A Mudlarking Year: Finding Treasure in Every Season

Review by Jim Butler

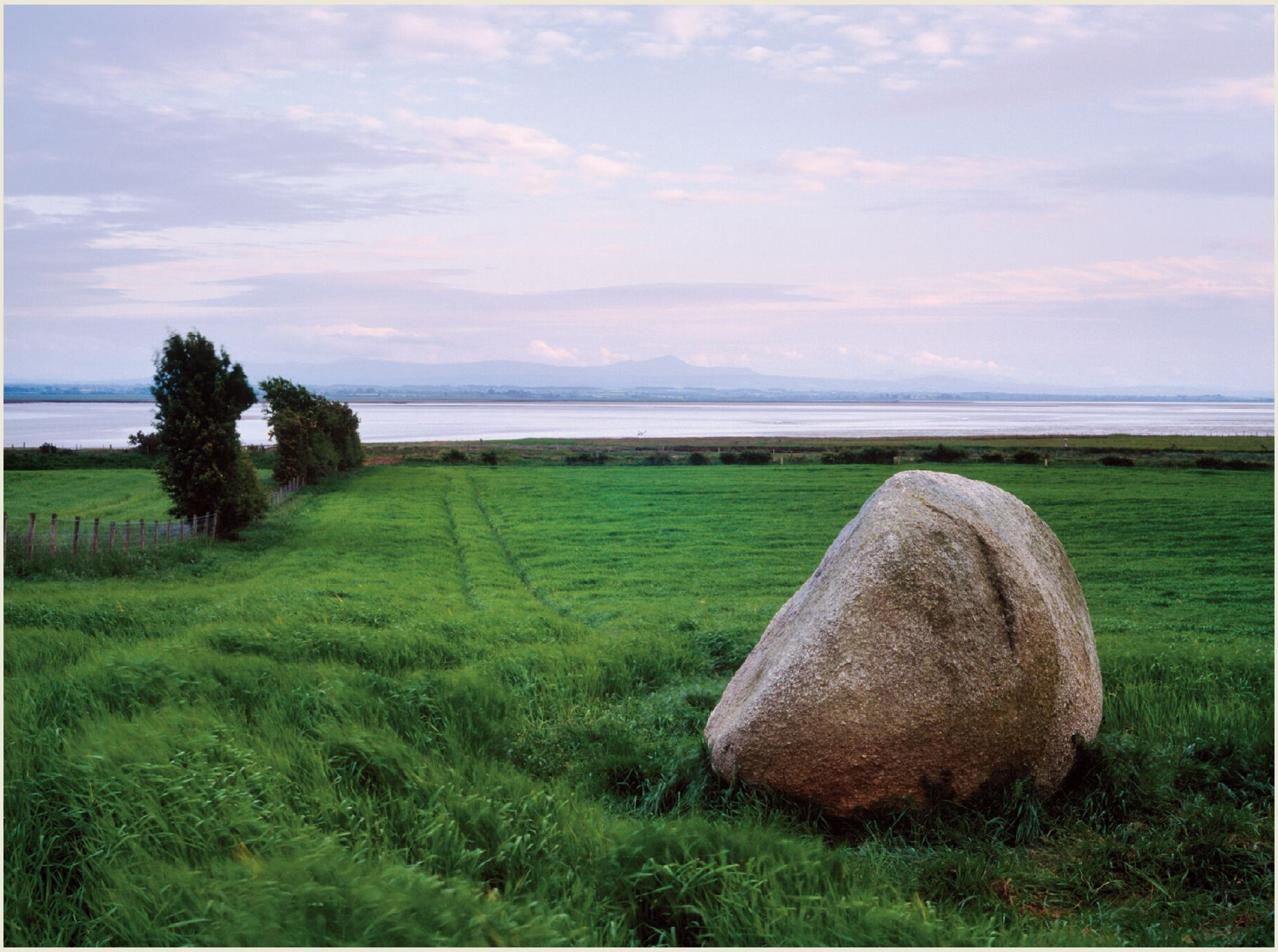
I remember reading Lara's first book, *Mudlarking: Lost & Found on the River Thames*, and instantly being captivated by the incredible stories of London's rich history that just seemed to wash-up at her feet. It seemed incredible to me that each day the Thames would reveal such fantastic treasures of London's past for just a few precious hours before secreting them away again. Much of this captivation, of course, came from Maiklem's relaxed and engaging narrative style, which gently carried you downstream from the river's tidal head at Teddington, through the beating heart of London and out past Tilbury into the estuary. So, the question for me with this book was whether she could achieve that same sense of wonder and discovery without it feeling staid or repetitive.

As the title suggests, *A Mudlarking Year* covers 12 months of Lara's expeditions along the banks of Old Father Thames – and that notion of the river as a sort of father figure seems almost reflective of the author's relationship with it – sometimes the river is giving and benevolent, others times it is cold and harsh, but always it is an enduring part of her life. A reassuring presence with whom she can share her thoughts and secrets as it, in turn, gives up its own. And so, as each new find brings its own astonishing window into the past, be that a glittering sixteenth-century posey ring or a cowrie shell that could have been used as part payment for a slave in the eighteenth-century, the further you're drawn into Maiklem's irresistible world of exploration, discovery, and illumination (even despite the evocative imagery of rotten wood, tar, and seaweed).

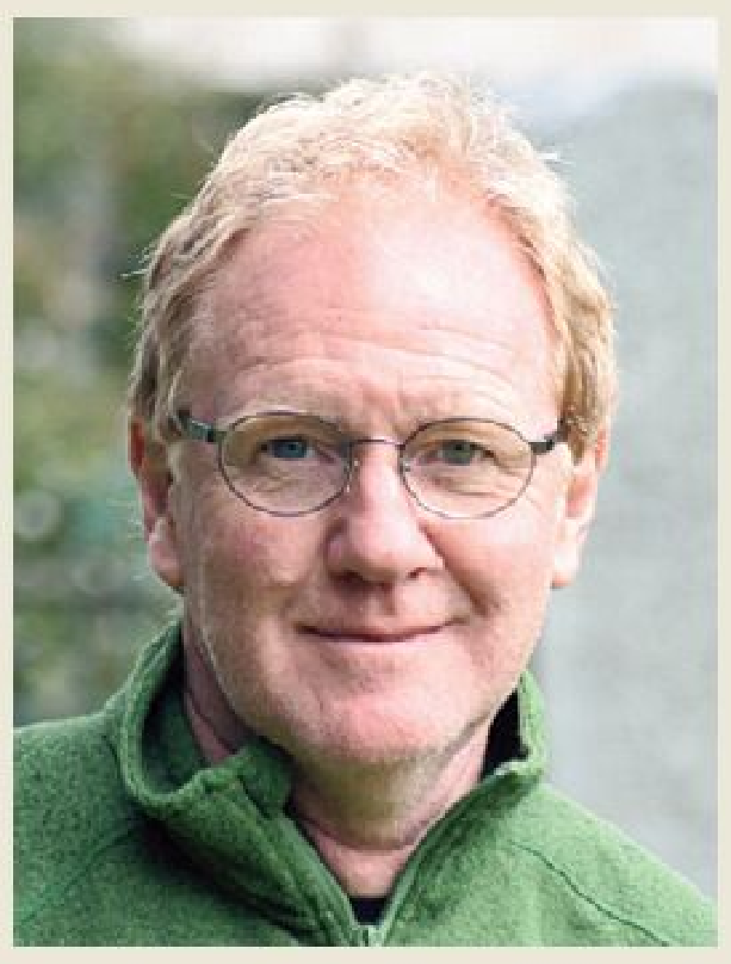
Like putting on a virtual reality headset, Lara's immersive and empathetic descriptions of the places she visits, the objects she finds, and the lives of those who may have lost them, immediately transports the reader, not only to the banks of the modern Thames, but to numerous points in London's often grimy past. Without doubt, *A Mudlarking Year* would be a worthy treasure to wash up onto anybody's bookshelf.

Mick Sharp visits an ancient meeting place and cult centre in Gretna, Dumfries and Galloway

Locus Maponi: The Clochmaben Stone



MICK SHARP



The Clochmabanstane, Gretna DG16 5EU (NY 312659) stands in a field S of Old Graitney farm.

Small car park at end of the lane running S from the farm buildings. Walk W beside the estuary (often flooded) then N up the field hedge to the stones.

King Edward I spent nearly two years of the final 10 of his reign campaigning in Scotland. Enraged by Robert the Bruce being crowned king of Scots at Scone, Edward, the 'hammer of the Scots', set out for one more go. But he was in his late sixties and in poor health. He died on 7 July 1307, camped on the salt marsh at Burgh by Sands about a mile north of Hadrian's Wall, waiting to cross the Solway Firth into Scotland.

A regular military route in both directions, crossing the Eden estuary on the 'Stoneywath', across Rockcliffe Marsh then the 'Sulwath', the muddy ford. Battles have been fought here, many lives lost to weapons, water, sands, and tides.

On the northern side of the estuary, with good views south to the Lake District hills, lies an ancient sanctuary to the Celtic deity Maponus (Maponos) the 'Divine Youth' or 'Great Son', known in Welsh literature as Mabon and akin to the Graeco-Roman hunter sun god Apollo. It is a classic Celtic location, a crossing place near the mingling waters of three rivers: the Esk, the Sark, and the Kirtle Water.

An ancient tribal meeting-place, cult centre and point of assembly, the Clochmaben Stone has become associated with the Locus Maponi (place of Maponus) mentioned in the seventh-century *Ravenna Cosmography*. Working from an earlier map, a monk at the monastery on Italy's Adriatic coast compiled a list of place names and geographical features throughout the Roman Empire, including Britain.

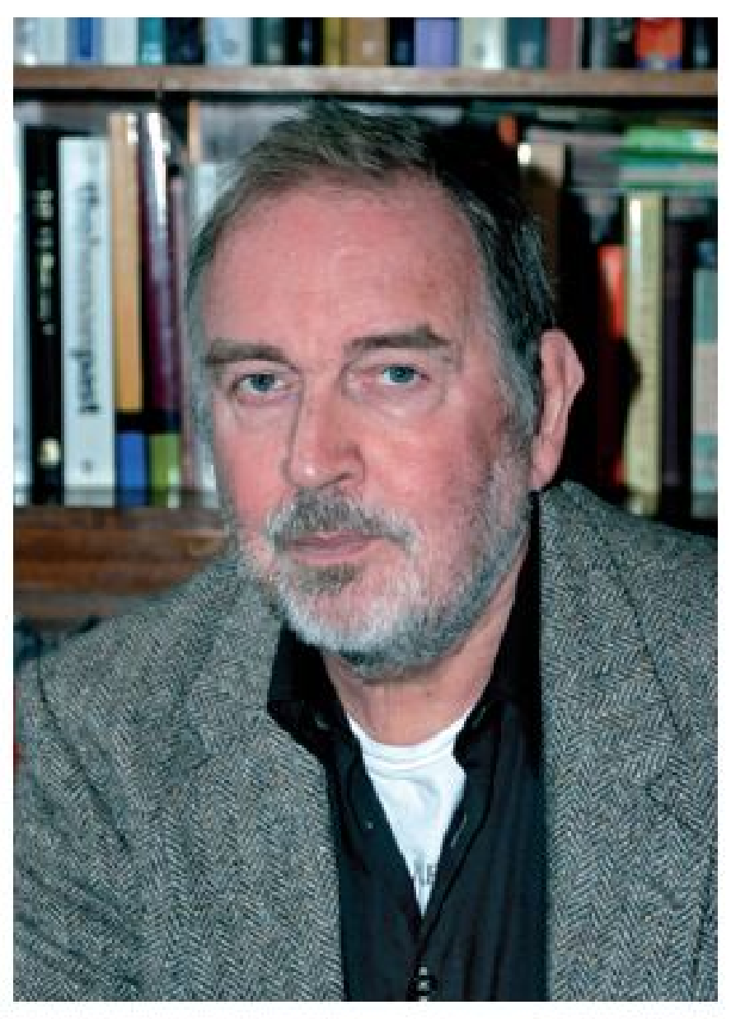
A noted Iron Age sanctuary such as Clochmaben – the stone of Mabon – fits the bill, but the town of Lochmaben, just under 20 miles to the northwest, has a rival claim. Confusingly, the name of this stone on Old Graitney farm, south of Gretna, has been corrupted to the Lochmaben Stone or Stane.

There was similar ritual use of an ancient boulder at Clackmannan near Alloa in central Scotland. The Clack Mannan – Stone of the Manau – marked a rallying point and sacred centre for a tribal grouping known in Roman times as the Votadini.

The Clochmaben Stone toppled over in February 1982. A mix of hazel, oak, and willow charcoal from the lower layer of the shallow stone hole gave a C-14 date of around 3200 BC, contemporary with the great Neolithic stone circles of Cumbria. The fallen giant had once been part of an oval of nine stones occupying around half an acre. By the early 1800s, most of the stones had been broken up, removed, or buried. Just this large glacial erratic of weathered granite remains, along with a smaller companion in the field hedge to the northeast. Since I took the above photo in June 1995, the stone has been stood back up again, but I think it looked better lying down.

English and Scottish Marcher Lords (Wardens of the Western Marches) would meet here to administer justice and settle terms for truces, prisoner exchanges, and hostage releases. A popular location for local gatherings and markets, and an ancient Celtic trysting place overtaken by the forge at nearby Gretna Green. 🟩

Dr Greg Bailey on broadcasting



BBC4, which replaced BBC Knowledge with its remit of education, has been my TV channel of choice since its launch in March 2002. I probably should disclose a special interest in that my documentary on our great folk singers Martin Carthy and our late sadly missed Norma Waterson that I had been pitching to generations of commissioners for more years than I care to remember, was finally broadcast in this new channel's opening week.

Possible partiality aside, BBC4 really did seem to encourage innovation and as its mission statement suggested it offered viewers 'a place to think'.

In the past, BBC4 TV has directly commissioned archaeology programmes. Richard Miles' series, *Archaeology: a Secret History* (which I appreciate more with each viewing) and Ben Robinson's *Flying Archaeologist* spring to mind. While in 2015, this minority channel scheduled three new episodes of *Digging for Britain* – currently a 'brand leader'.

Presently, however, in line with stated policy BBC4 seems to be digging BBC archives rather than unearthing new ideas, fresh talent or different views – perhaps BBC4 now a place to reconsider rather than think? Who would now possibly commission: *Pioneering Women of Archaeology*, *Archaeological Dialogues*, *Archaeology in Theory* or *Archaeologies of Us*? But however lamentable, in that new insight and new understandings of archaeology might be denied an airing, a recycling of vintage TV archaeology is not without its own reward.

Recently BBC4 has featured themed evenings wholly dedicated to a genre, a particular performer, a cultural turn or historical period. Predictably enough, given that pyramids, mummies, in general, and Tutankhamun, in particular, have been TV staples for as long as I can remember, ancient Egypt was bound to be on the programme schedulers' list.

Viewers were to be treated to some recent and not quite so recent 'golden oldies'. Accordingly, to name but a few, we could see Alistair Sooke cast an art-historian's eye on the *Treasures of Ancient Egypt* while architectural historian Dan Cruickshank was on hand to offer his *Egyptian Journeys*. Meanwhile, *The Man Who Discovered Egypt* no doubt offered viewers a second chance to gain insight into Flinders Petrie's work and the birth of both Egyptology and archaeological method. While first shown in 2011, here to bring us more-or-less up to date, was space archaeologist Sarah Parcak discovering hidden features, monuments and *Egypt's Lost Cities*.

But for those not exhausted by a whole evening of scarab, and sarcophagi, BBC4 was on hand to offer a documentary series which was, of itself, something of an historical artefact. This was *Tutankhamun's Egypt* written by the venerable Cyril Aldred – he who introduced a rock and roll generation to Egyptology.

Produced to coincide with the British Museum's special exhibition, Treasures of Tutankhamun, opened by Queen Elizabeth in 1972, and accompanied by the eerily brilliant, electronic music of the late great Delia Derbyshire, here was a nine-part, half-hour series of illustrated lectures on everything from science and technology (episode one) to the Nile Fleet (episode 3) and the King's Councillors (episode 7).

Having gamely watched a succession of documentaries on all things ancient Egypt in a single evening it was perhaps surprising that such a straightforward documentary series made more than half a century ago could capture my somewhat waning post-midnight attention just as much as it did.

Perhaps it was the very simplicity of the format's straightforward, scholarly proposal – here is film of artefact or monument or hieroglyph, meanwhile hear a description of use, symbolism, context, meaning – that for me carried special appeal?

When not proselytising ancient aliens, Channel 5 (a comparable 'small' broadcaster) has long offered original archaeology-themed shows with decent budgets. *Ice Age: Apocalypse* (February 2025, October Film Studios, C5) is a new two-part special featuring Michaela Strachan and Steve Backshall, both best known as presenters of natural history and wildlife documentaries.

The first episode moved from traces and remains of Mesozoic-era dinosaur mega-fauna to the flora, fauna, and human transformations of the Pleistocene.

Viewers heard about many consequences – though not many probable causes – of widespread glaciation. Nor did viewers hear much about periodic interglacials.

As a further niggle, while I am sure Pleistocene cave bears were probably never a welcome guest in the cave shelters of neanderthal or sapiens, were these largely vegetarian beasts really the carnivorous human predator that the programme's commentary suggested?

Perhaps I'm wrong, but I am guessing that Professor Schreve didn't have final script approval.

And while it seems to me that if anything it was the Holocene that was to prove 'apocalyptic' for megafauna (for our own species the jury is still out) *Ice Age: Apocalypse* does prove that small minority audience channels can still find finance and ambition to produce big special science documentaries.

Contributions from flint-knapper archaeologist Dr James Dilley, paleo-ecologist, bio-geographer Professor Danielle Schreve, geneticist Professor Love Dalén, and other specialists lent a great deal of authority to the programme. And if computer generated imagery (CGI) was extensively used to revitalise long extinct bestiary, *Ice Age: Apocalypse* was not made on the cheap, being filmed in such far-flung locations as Svalbard and Sweden, Plymouth and beyond.

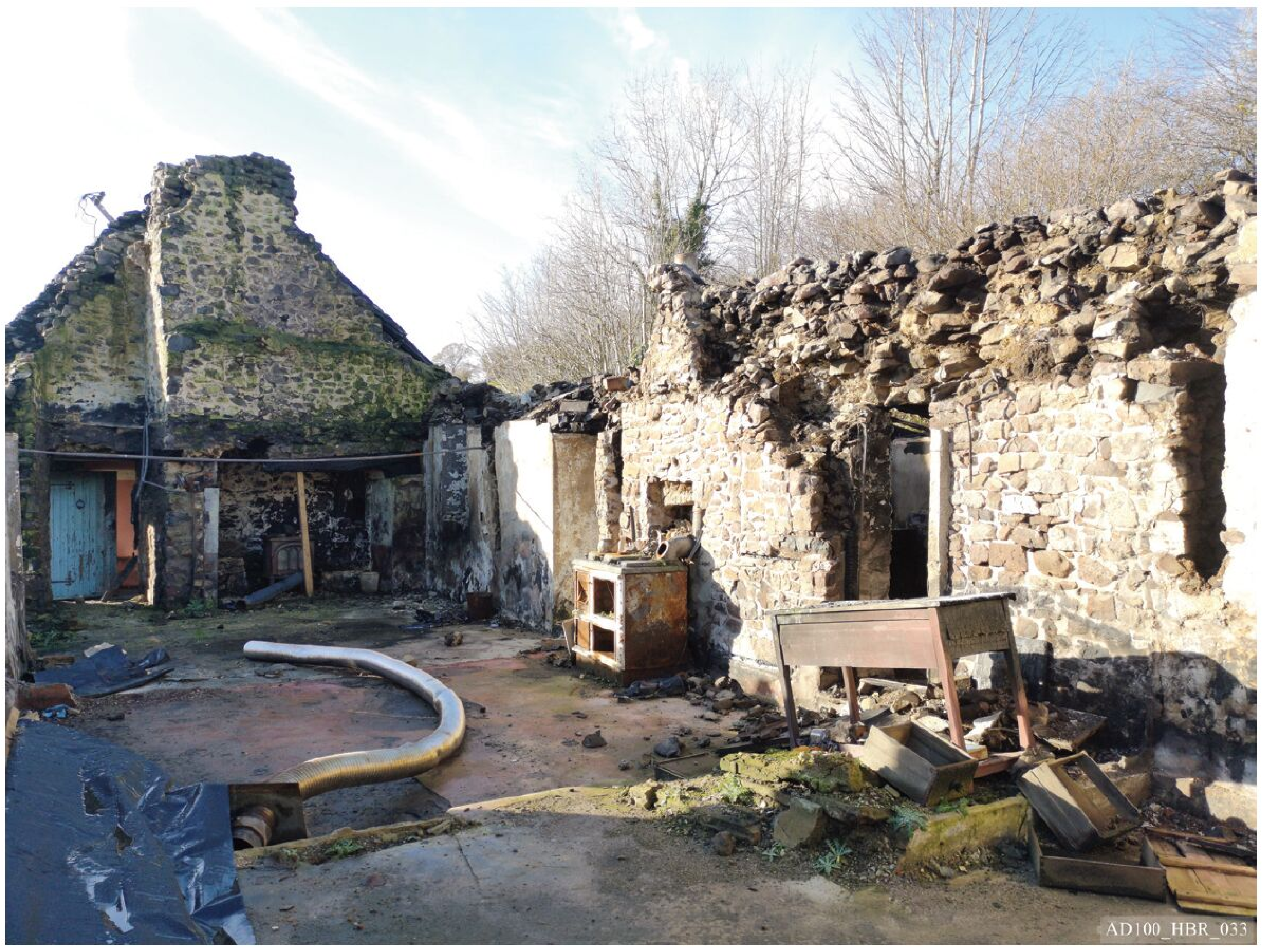
Possibly the most important documentary film ever made, produced by Sydney Bernstein (who would later founded Granada TV) in 1945 and overseen by Alfred Hitchcock, was shelved by the British post-war government and in subsequent years remained largely forgotten.

Andre Singer revisited original material shot by military cameramen on the liberation of Bergen-Belsen and other Nazi concentration camps to make his documentary *Holocaust: Night Will Fall* (2014, shown on Holocaust Memorial Day, 27 January 2025).

However unbearable, this becomes necessary viewing for every politician, historian, anthropologist, and archaeologist, who would consider the structure and mechanics of organised atrocity – the consequences of which horror are still in play. ■

Catherine Bell, listed buildings caseworker at the Council for British Archaeology, explores examples of how the CBA evaluates the impact of its listed buildings management advice

79. Understanding the impact of casework



ROSS COOK, ARCHAEODOMUS [2]

This page: Two views of Gelli Cefn Y Rhos farmhouse, Llandeilo, Carmarthenshire, which had become unsalvageable; the CBA advised that it was delisted ahead of demolition

The nature of the CBA's casework role is a continuous flow of planning notifications (the majority for Listed Building Consent) to review and selectively advise on. Our two caseworkers cannot possibly comment on all the 8,500 (approximate) notifications we receive each year, so we identify those which best align with our priorities for comment and respond where we can make a positive impact on how change to the historic environment is managed.

The continuous arrival of new applications to assess makes it difficult to step back, review, and evaluate whether we are focusing our limited capacity in the optimum way. To assess our impact, we host an annual work placement to review our casework advice and determine where to focus our efforts to have the best impact, and if there are any patterns we could learn from to improve our impact.

This work placement has been undertaken by student interns for the past few years, who spend 10 days on secondment from their Masters' programme at the University of York. From reviewing the CBA's casework advice against the planning officers' report, and other supporting information on local authorities' planning portals, they gain an understanding of how heritage protection within the planning system works in practice while also providing valuable feedback to our casework team.

George Ellison, who is also a member of the CBA's Youth Advisory Board, has recently concluded an impact research study into the CBA's casework in 2023 (there is always a time lag due to the time taken to reach planning decisions). Alison Edwards (CBA's other listed buildings caseworker) and I have been really pleased to hear George's findings.

Managed change is an integral part of conserving the special interest of historic components of the built environment. As a result, it is rare that we object to proposals in principle. Generally, we advise on how proposals should be revised to minimise harm to the heritage significance of a place, as part of their evolution. George's research identified a positive impact from the CBA's engagement in 61% of the cases where we commented. In 22% of cases we had no impact on the outcome. In the remaining 17% of cases the outcome was based on considerations other than heritage, such as access, highways, environmental health, or environmental impacts, so we view our impact as 'neutral'.

Conservation philosophy for old buildings centres on an understanding of which aspects of a building articulate its heritage significance as the key to formulating proposals to change it in a way that minimises harmful impacts to that significance. This is picked up as a requirement in national planning policies in both England and Wales.

It is common for CBA advice to identify a lack of assessment and understanding regarding which aspects of a site contribute to special interest, leading to proposals that would cause unjustified levels of harm to the site. We were really pleased to see that our recommendations for revisions to such applications for many listed buildings were followed by the applicants, and permission subsequently granted by the local authority.

There will always be some applications we review that are so insensitive to the special interest of a site that the CBA robustly objects to them, advising they should be withdrawn by the applicant, or refused by the local authority.

Proposals for extensive demolition and redevelopment at Bagshaw's in Marchington, Staffordshire was such a case. A seventeenth century timber framed house, within a curtilage of seventeenth, eighteenth, and nineteenth-century buildings, retained considerable evidential value about historical trades and functions at the site that concurrently included agriculture, blacksmithing, a joiner's shop, and a wheelwright. The site's time depth and continued occupation by successive generations of the same family has resulted in an impressive legibility of its phased evolution.

The fragility of this legibility is exposed by the advanced state of decay in many of the curtilage buildings. Proposals to demolish the entire range of curtilage buildings would have destroyed this physical record and was not justified by the structural survey. We objected to the application. We advised that stabilising and adapting many of the curtilage structures into houses could deliver the same public benefit in terms of housing without losing all future ability to understand the many agricultural and cottage-industrial uses of the site, which contribute significantly to the character and appearance of the Marchington Conservation Area.

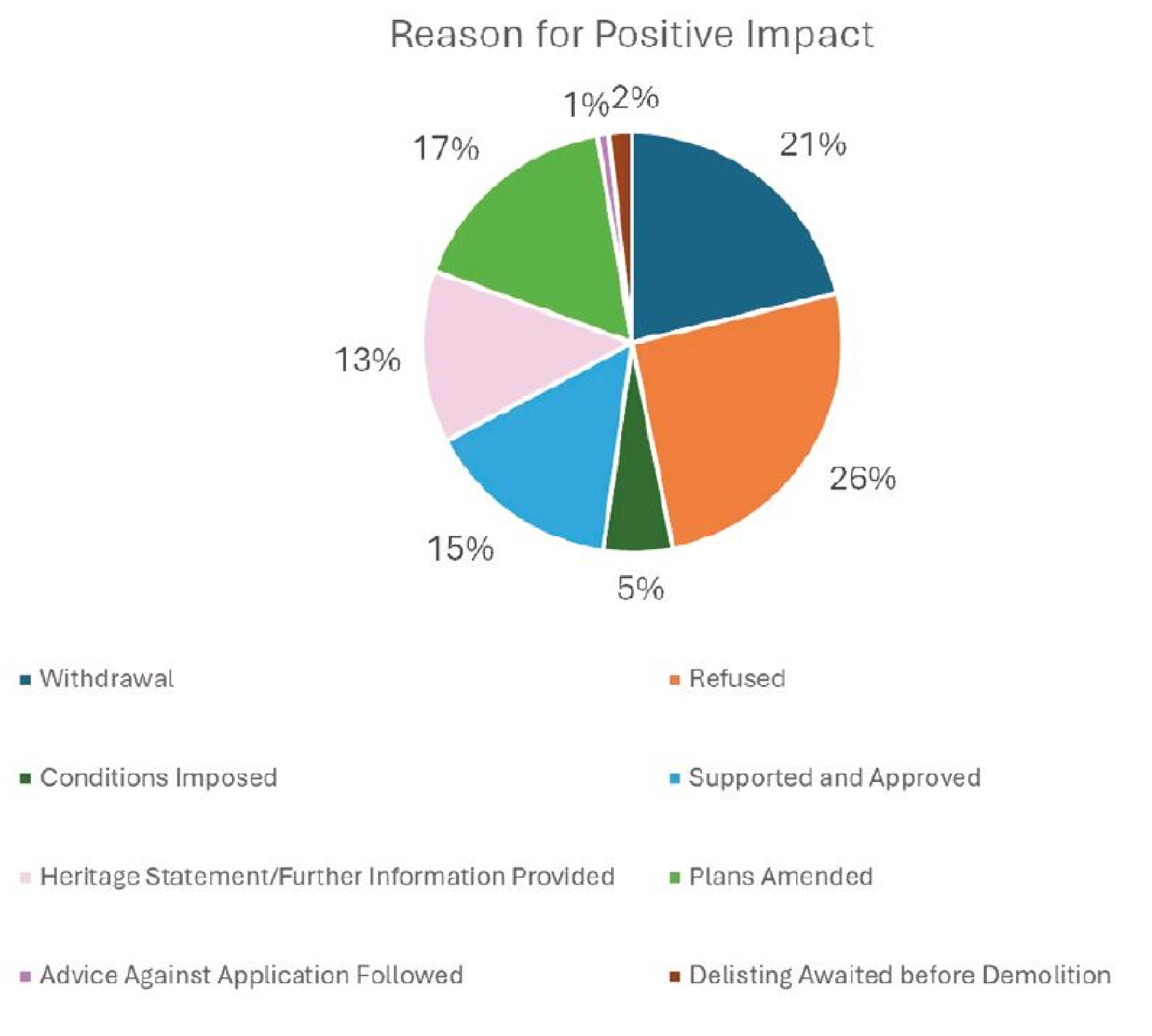
The application for Bagshaw's was one where a heritage assessment (a requirement for listed building consent applications) was commissioned as an afterthought to the formulation of proposals. An eye-rollingly common occurrence. The assessment enabled us to give constructive advice about how the heritage significance of the site could be enhanced through an alternative strategy of adaptive reuse at the site. We are really pleased that our objection and advice influenced the refusal of this harmful scheme. We hope to see an alternative strategy brought forward.

Retaining the legible evolution of sites is one of the CBA's priorities in our casework. We were pleased to note that our advice to revise proposals at the former county archive facility adjacent to Haverfordwest Castle had an impact. The time depth of Haverfordwest Castle, stretching back to 1108, and its important role in multiple periods and historical events makes twentieth-century alterations pale into insignificance on its timeline. However, its nineteenth-century use as a gaol complex, and 1960s adaptation of the remaining gaol building into a county archive and records office, reflect the changing role of large scale civic buildings.

Buildings are most vulnerable in the decades following their construction. The 1960s records office, designed by county architect Gilbert Ray, uses a materials palette and architectural tone that are sympathetic to the site. Arguably, the modern extensions have both architectural and evidential value, as a record of the phased role and development of the site and as an example of 1960s civic architecture which was inspired by a historic site.

The CBA supported its proposed adaptive reuse that will increase public access to the under-used site but advised against the unnecessarily destructive approach, which we believe would create a false narrative of its development by stripping away later phases. We advised a 'light touch' approach as sufficient until a future occupant and definitive master plan for the site is secured.

We are painfully aware of how funding cuts to local authorities have impacted planning teams, particularly specialist staff, including conservation officers and archaeologists. It is common for neighbouring authorities to share such specialists, meaning they cover large geographical areas and have a huge volume of work. Another (often necessary) cost saving tactic is recruiting early-career staff, at lower pay grades, to replace experienced staff.



Above:* *A chart showing the positive impacts made by the CBA's listed buildings casework advice

George's research identified a large number of applications where the CBA's advice has made a valuable plug to this gap and other instances where it has informed detailed planning conditions for the use of suitably 'breathable' materials, archaeological recording, and sensitive landscaping design.

Another strand of advice that our impact research suggests it is helpful to pursue is where the extent of dilapidation or damage is extreme. We are pleased to see that our recommendation was taken up for a CARE (Conservation Accredited Register of Engineers) accredited structural engineer to inform the iterative removal of historic fabric following a catastrophic fire at 5 Market Place, Wisbech. In such occurrences it is too easy for consented partial demolition to become overzealous. Similarly, in the regrettable instances where listed buildings like Gelli Cefn Y Rhos, Llandeilo become unsalvageable, we advise that they should always be delisted before demolition can be consented, to avoid setting an unfortunate precedent.

Our casework role is supported by funding from Historic England and Cadw, but we could not do our work without the team of amazing casework volunteers who help maintain our database or continue to offer our free and valued advice without the support of members and donors to the CBA. ■

HAVERFORDWEST. THE CASTLE AND OLD BRIDGE
5225

PUBLIC DOMAIN

Left: The CBA supported the adaptive reuse of 1960s extensions to Haverfordwest Castle

The CBA's Out and About Archaeology event will return in 2025. This year we will be highlighting even more ways you can explore the amazing and rich archaeology and heritage across the UK

Out and About Archaeology

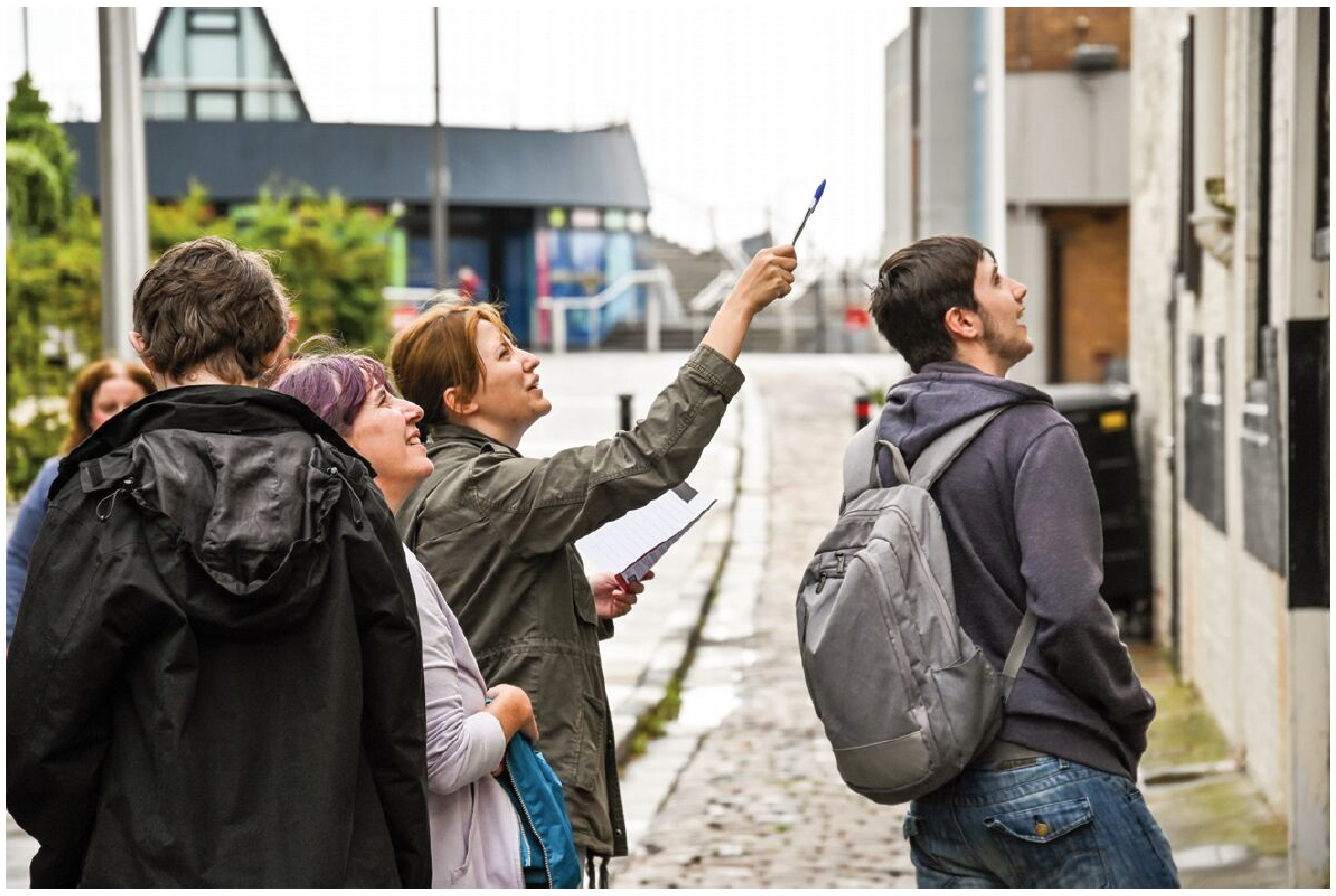
Archaeology and heritage are all around us, whether you are in an urban centre or rural area, there is always something new to discover. Exploring the archaeology of the places we live, work, and visit helps us to better understand their stories and communities, enabling us to feel more connected to the past and present.

Out and About Archaeology is designed to provide plenty of options to help you access archaeology, whether that is while you are outdoors exploring, attending an organised event, doing a self-led activity, or journeying from home via maps and digital technology. However you want to explore, we've got tools to help you do it.

What's happening

CBA's executive director, Neil Redfern, will be leading two walks. On Saturday 17 May, join Neil for a walk around York city centre and hear some of the stories of the city's archaeology and heritage. On Sunday 18 May, Neil will be leading a tour of Thornborough Henges in North Yorkshire, exploring the landscape setting of the henges.

CBA events officer Jim Butler will be offering a number of walks and cycle rides around Leicester. Join Jim as he walks back in time to the 1645 Siege of Leicester, follow in the steps of Richard III on his final journeys, or explore the ancient highways of Leicester by bike with his Gates & Gatas tour for the Walk Leicester Festival, which is being delivered by Choose How You Move.



CBA [3]

Top: Visiting an Ordnance Survey benchmark at Binevenagh AONB, Northern Ireland

Above right: Investigating a pillbox at Bridlington

Right: Discovering Hull's heritage

If you are unable to join one of our in-person tours, we have plenty of other opportunities for you to get involved:

- I-spy – we will be releasing a new family friendly I-spy guide which you can download and use to seek out some archaeology, while also supporting your well-being.
- Places of Memory and Meaning – over the last year at our in-person events we have been collecting stories about places from across the UK that have meaning for people. We are now creating a digital map for sharing these stories and we will also be inviting you to share your own stories with us, and to add your places to the map.
- Online talk – Neil Redfern will be giving a talk on his journey along Hadrian's Wall.
- CBA sponsored activity – over the course of Out and About, CBA staff will be undertaking a fundraising challenge to help raise money to support our work. Details of how you can support us will be available on the CBA website.
- Guided walk workshop – if all of this has inspired you to develop your own guided walk or cycle, then we have the perfect workshop for you. On Tuesday 20 May Jim Butler will be taking you through the process of designing and setting up your own guided tour. From creating your storyboard to promoting your event, Jim will take you through

CBA [2]

Above: A guided tour of Corfe Castle

Left: Places of Memory and Meaning map

each step, sharing his experience and giving you plenty of hints and tips along the way.

- Event listings – while most of the CBA-led events and activities will take place from 17 to 25 May, we will also be promoting events and activities happening across the UK throughout May via our event listing (www.archaeologyuk.org/get-involved/out-and-about-archaeology/out-and-about-archaeology-events.html).

Find out more about this year's events and activities and how you access the on-demand walks and resources by visiting the CBA website at www.archaeologyuk.org/get-involved/out-and-about-archaeology.

Access on-demand resources

We already have a great catalogue of Out and About Archaeology resources that you can access on-demand anytime (www.archaeologyuk.org/get-involved/out-and-about-archaeology/out-and-about-archaeology-resources.html).

The resources include 60 self-guided walks from across the UK, including a number of Forestry England trails, audio trails around Woking Palace by Surrey County Archaeological Unit, and a range of walks from Heneb to help you explore historic landscapes around Wales. There are also a number of pre-recorded talks and a range of creative activities to help you explore places in different ways.

Following on from the success of our digital walk with Neil Redfern and archaeologist and author Jim Leary, we will once again be working with Geovey by Nautoguide to bring you a range of new tours from across the UK, including a visit to an excavation in Northern Ireland with Queens University Belfast, and a trip round Wharram Percy deserted medieval village in the Yorkshire Wolds.

The platform is designed to make places more accessible, enabling you to visit from home via your laptop, or in person accessing the waypoints via your phone as you move around the site.

If you'd like to create your own digital journey with Geovey, you can publish one map for free on the platform and the team at Nautoguide have created some step-by-step instructions to help you get started, which you can access via our website.

We need your help

If you have an event or activity planned for May we want to hear from you so we can promote your activity via our event listings. We also want to continue to build our resource library and are looking for talks, self-guided walks, and activities linked to exploring places through archaeology and heritage.

In particular, we are keen to hear about accessible trails and tours, digital activities that help enable people to discover archaeology from home, and activities for young people.

If you have an event that you would like us to promote or a resource you would like to share you can upload the details via our website or if you have any questions you can get in touch by emailing events@archaeologyuk.org.

Out and About Archaeology is part of the CBA's Reconnecting Archaeology project funded by the National Lottery Heritage Fund. ■

Vanessa Oakden is curator of regional and community archaeology at the Museum of Liverpool and leads the Mersey & Dee YAC group with the support of a fantastic team of volunteers

Superlambanana!!!

MUSEUM OF LIVERPOOL [3]

Back in the summer of 2024 the Mersey & Dee Young Archaeologists' Club met for a special half-term day session looking at the archaeology of Liverpool's waterfront. Members discovered plans for the future through the Waterfront Transformation Project and got hands on with finds from waterfront excavations at Manchester Dock and Piermaster's Green.

In 2021 and 2022 the Mersey & Dee YAC took part in the Piermaster's Green excavation and members were able to share their experience while handling the finds. Taking a walk around the historic waterfront to explore their landscape, the group met some of the city's Superlambananas.

Superlambanana: What is it?

A superlambanana combines a lamb and a banana, two things that would have been imported and exported through Liverpool's docks. The original Superlambanana was designed by artist Taro Chiezo for the 1998 Art TransPennine exhibition.

In 2008, Liverpool became the European Capital of Culture and a trail of Superlambananas was launched to welcome visitors to the city, later being auctioned to raise money for charity. Then in 2010 several more permanent Superlambanana sculptures were created for the city and decorated by local artists.

At the waterfront, where five of these brightly coloured sculptures welcome visitors to the Museum of Liverpool, weathering meant a refresh was needed for one of these well-loved sculptures.

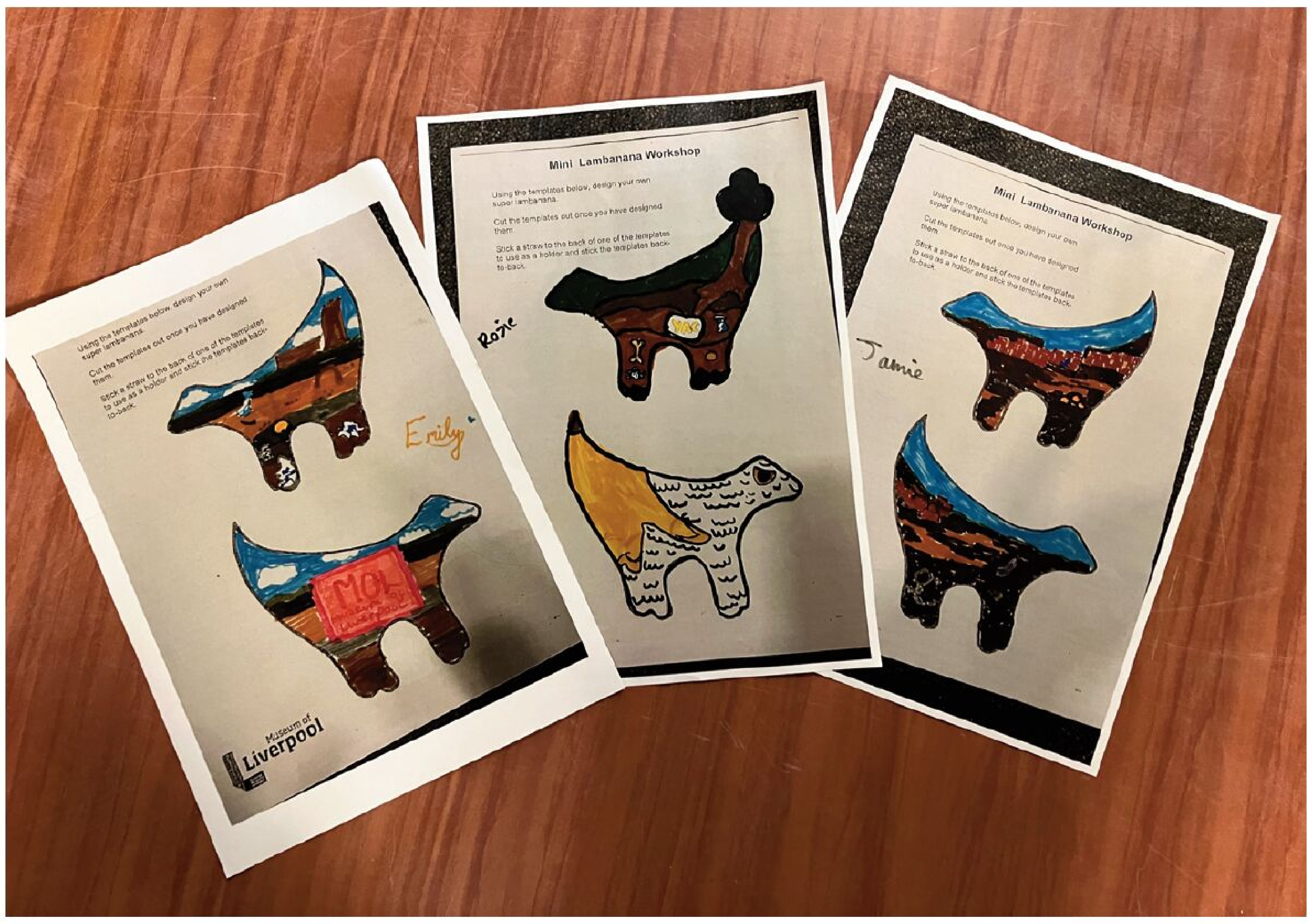
Designing a SuperYAClambanana!

Back inside and inspired by the landscape and finds the group got creative, each coming up with a design for a Superlambanana. The new design would represent local archaeology and some of the 100,000 objects in the Regional Archaeology Collection at the Museum of Liverpool. With some fantastic designs created, a team of Museum of Liverpool curators voted, from which a theme of stratigraphy emerged.

First place was awarded to Emily, who won a plush superlambanana and some other superlambanana-themed goodies. Emily met with the artist to share her ideas and learn more about the process.

"I felt very happy to win the competition but knew that the superlambanana needed to be funded; when I knew it had been funded, I was

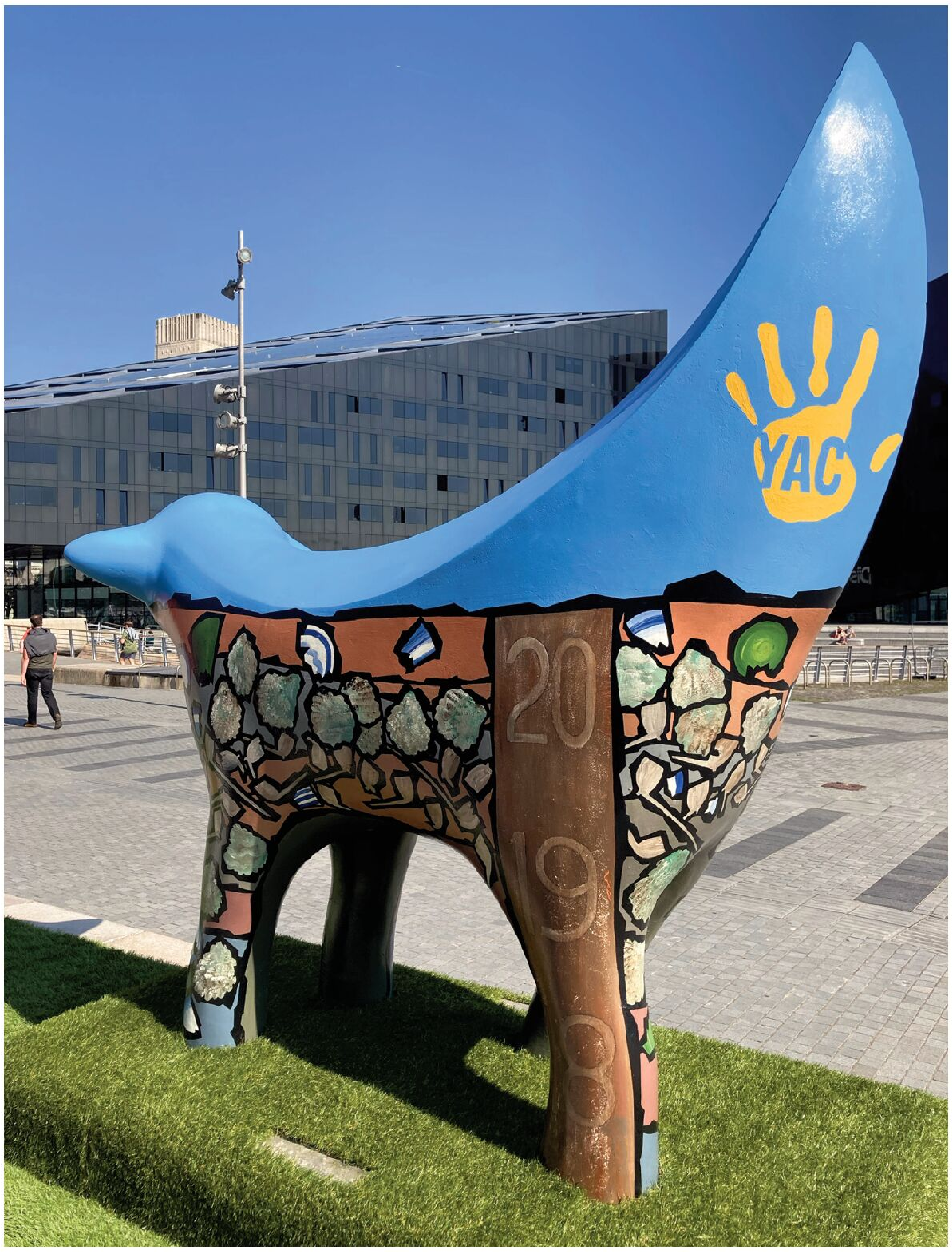
YASMIN THOMAS PHOTOGRAPHY



Top: Some members of M&D YAC with the Superlambanana

Right (middle): YAC half term club - maps

Right: The three winning designs which inspired the project



Far left: Archaeology Superlambanana in front of the Museum of Liverpool

Left: The artist painted the winning artist's name on the belly of the superlambanana

Left: The artist putting detail on the depth gauge from Manchester Dock

MUSEUM OF LIVERPOOL [3]

very, very happy. I was excited to meet a real artist, and it felt good talking about the design with him."

After the meeting, the artist added Emily's name to the belly of the superlambanana in gold. "I loved seeing my name for the first time. It feels really, really special. It feels so good because superlambananas are a massive thing in Liverpool and I am very proud to have designed one."

Rosie and Jamie's colourful designs came a close second and third, and all three designs inspired the final artwork. Rosie shares her experience, taking part in the day, and her love of archaeology.

"I really enjoyed the session, and I hope there are more in the future. It was an exciting day and it was good to hear about the plans for the future of the waterfront. The best part of the day was getting the opportunity to design our own superlambanana. The inspiration for my design was what I love about archaeology and the buzz I get from digging and finding pieces of history, so I tried to base my design around these things.

"When I heard my design was part of the final design, I was so proud to tell my friends and family. Then when I saw the superlambanana outside the Museum of Liverpool I was so excited and very impressed with how the artist brought the design to life."

Young Archaeologist Jamie's design was the third chosen by our curators. Jamie, who took part as a YAC member, is now a young leader with the Mersey & Dee branch. "The inspiration for my superlambanana design came from a YAC session on Pompeii where I loved hearing and seeing pictures from the excavations taking place. A session that included pottery from Merseyside also inspired my design.

"When I first found out my design was one of the few picked to help the artist I was amazed and very excited to see the finished result. When I saw the finished superlambanana for the first time I thought it captured the archaeology of the area perfectly. I also thought it looked wonderful outside of the Museum of Liverpool."

The Mersey & Dee branch are looking forward to receiving t-shirts inspired by Liverpool's newest superlambanana. Archaeology (2004) was designed by the Mersey and Dee Young Archaeologists Club to celebrate archaeology in the city, featuring finds discovered in the layers beneath our feet. It joins four other superlambananas welcoming visitors to the Museum of Liverpool. ■

CREATE & INVESTIGATE

Petrosphere

This YAC activity will help you craft and decorate your own mysterious carved ball

Over 400 decorated carved stone balls have been found by archaeologists. Most have been found in northeast Scotland. They are otherwise known as petrospheres, which is the name given to any round man-made object made of stone.

They are around 4,000 years old and date to the late Neolithic or Bronze Age. The balls are about 70mm in diameter – about the same size as a tennis ball – and are made of various stones ranging from sandstone to granite

No one knows for sure what these petrospheres were used for. Not many of the spheres are damaged or show any signs of having been used so perhaps they were used in ceremonies; they could be held as a symbol of power or perhaps they were passed around to someone if they wanted to speak.

Could leather have been strung around the balls so that they could be used as weapons? Were the balls part of a game? The balls could have even been just decorative. What do you think?

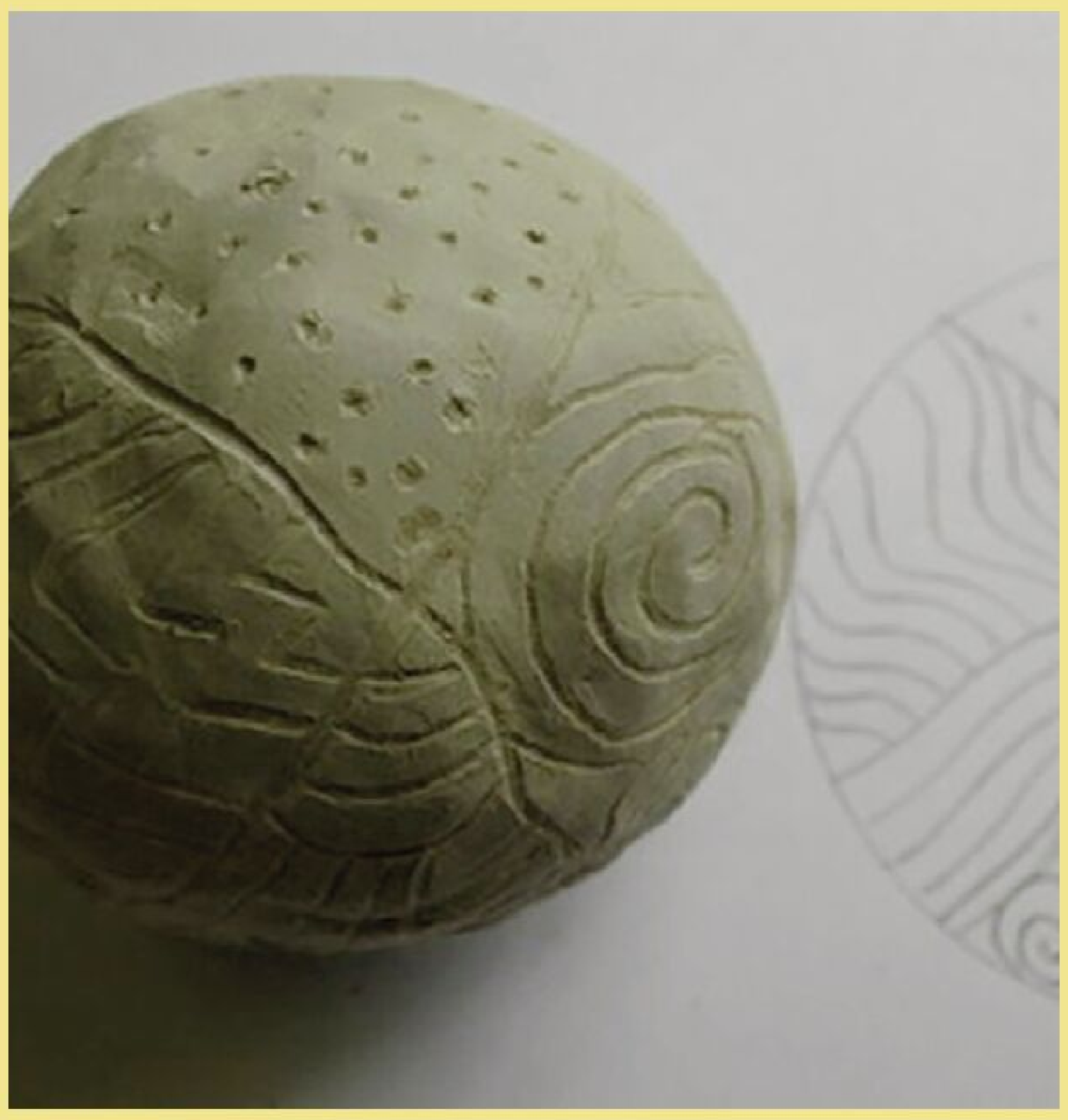
Activity: Carving a petrosphere

Adult supervision is not required for this activity

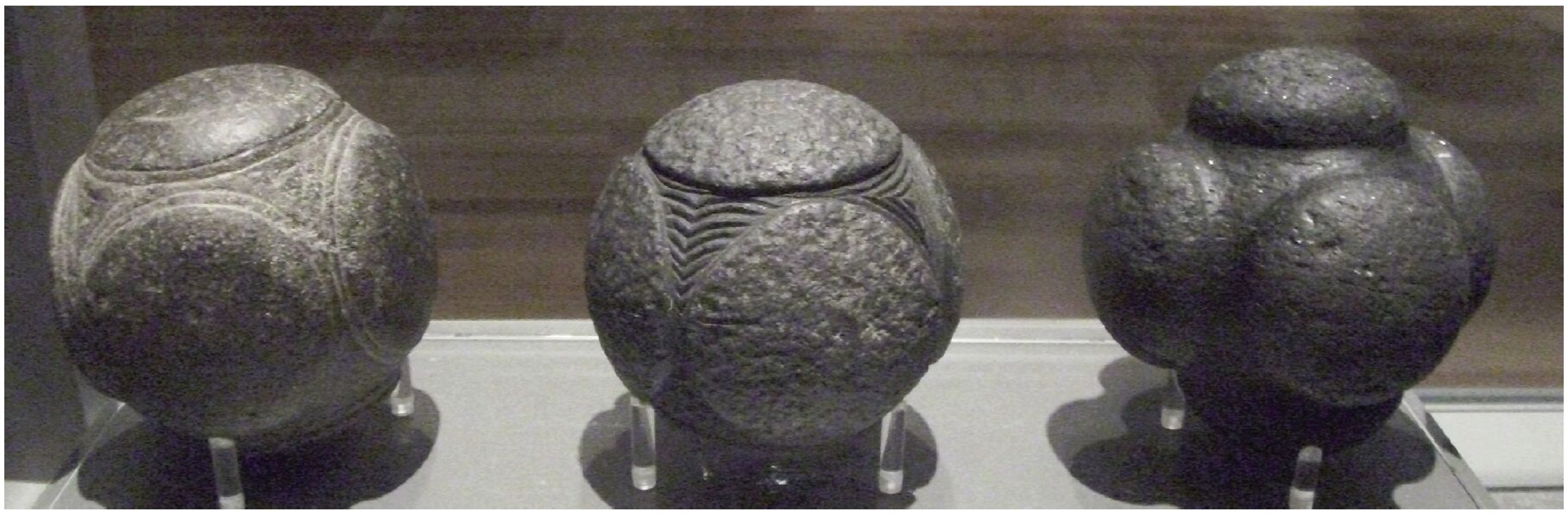
- Type of activity: Crafting
- How many people required (minimum): 1
- Ages: All ages

You will need:

- Newspaper
- Flour
- 1 litre of water
- Air drying clay
- Modelling tools or a wooden lolly stick
- Washing up/big mixing bowl
- Paper and pencil for your designs



Above: By following the step-by-step guide on the opposite page you can create your own petrosphere



JOHNBOD/CC-BY-SA-4.0

These three carved stone balls, or petrospheres, are on display at Kelvingrove Art Gallery and Museum in Glasgow

Visit www. yac-uk.org for more

Activity: suitable all ages

young archaeologists' club

Method

1

Put about 1 litre of water into your bowl. Add the flour a little bit at a time. Keep stirring and add enough flour to turn the water into a paste (you can use PVA glue and water, or mixed-up wallpaper paste instead if you like).

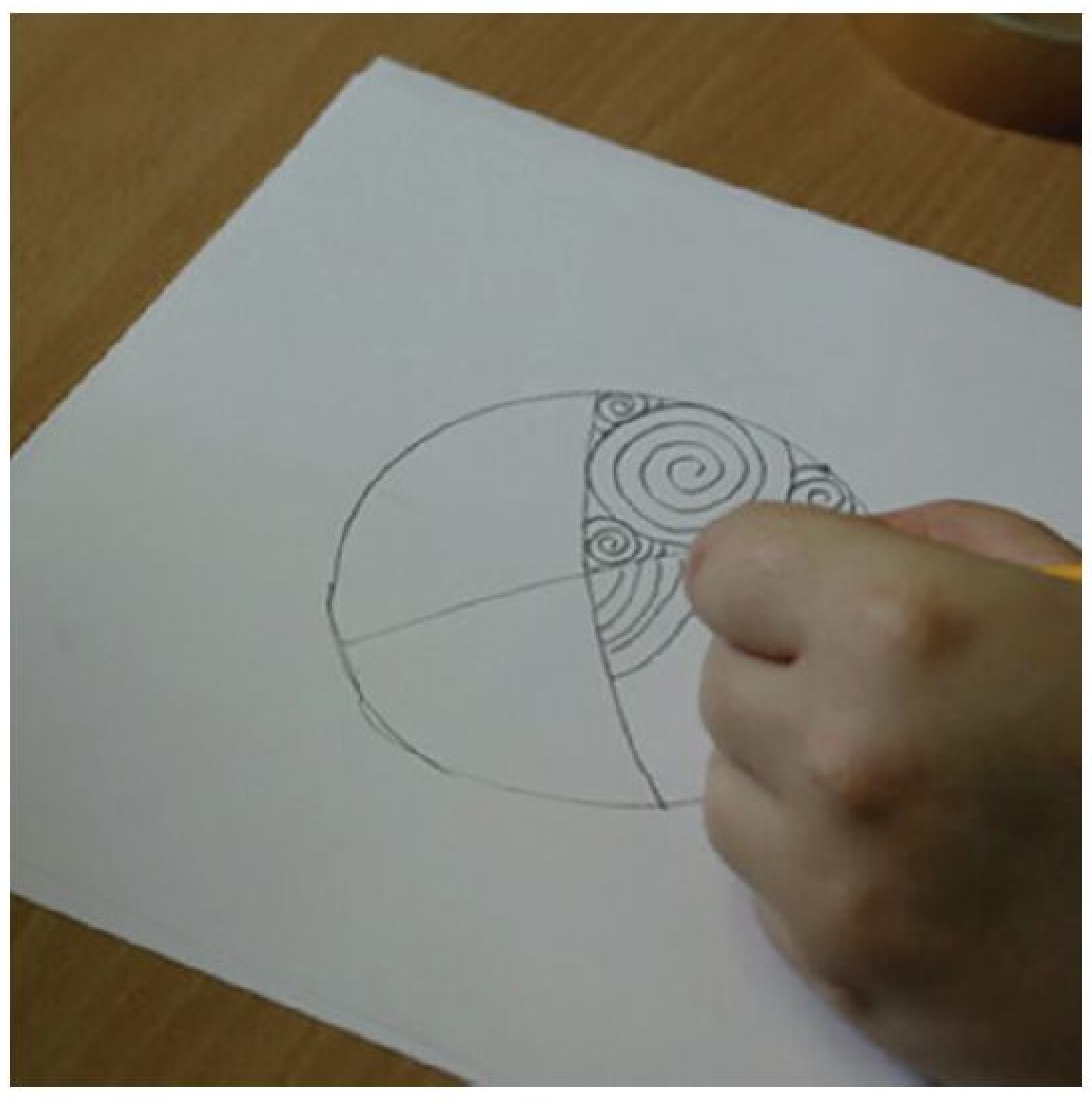
2

Scrunch up a piece of newspaper into a ball. Tear some more newspaper into strips. Dunk one of your newspaper strips into your paste, wipe away any excess – you don't want it to be too soggy.

3

Smooth the strip over your newspaper ball. Repeat the process until you have built up a good layer all over. Keep going until your ball is about 60mm in diameter. Leave your ball overnight to dry somewhere warm.

4



While you are waiting for the paper mache ball to dry, you can design your carvings. The original balls featured lots of swirls, lines, and hatching so that could be a good place to start.

5

When your paper mache ball is dry, cover it in a thick layer of clay to make an even sphere. Leave the clay-covered ball to dry overnight.

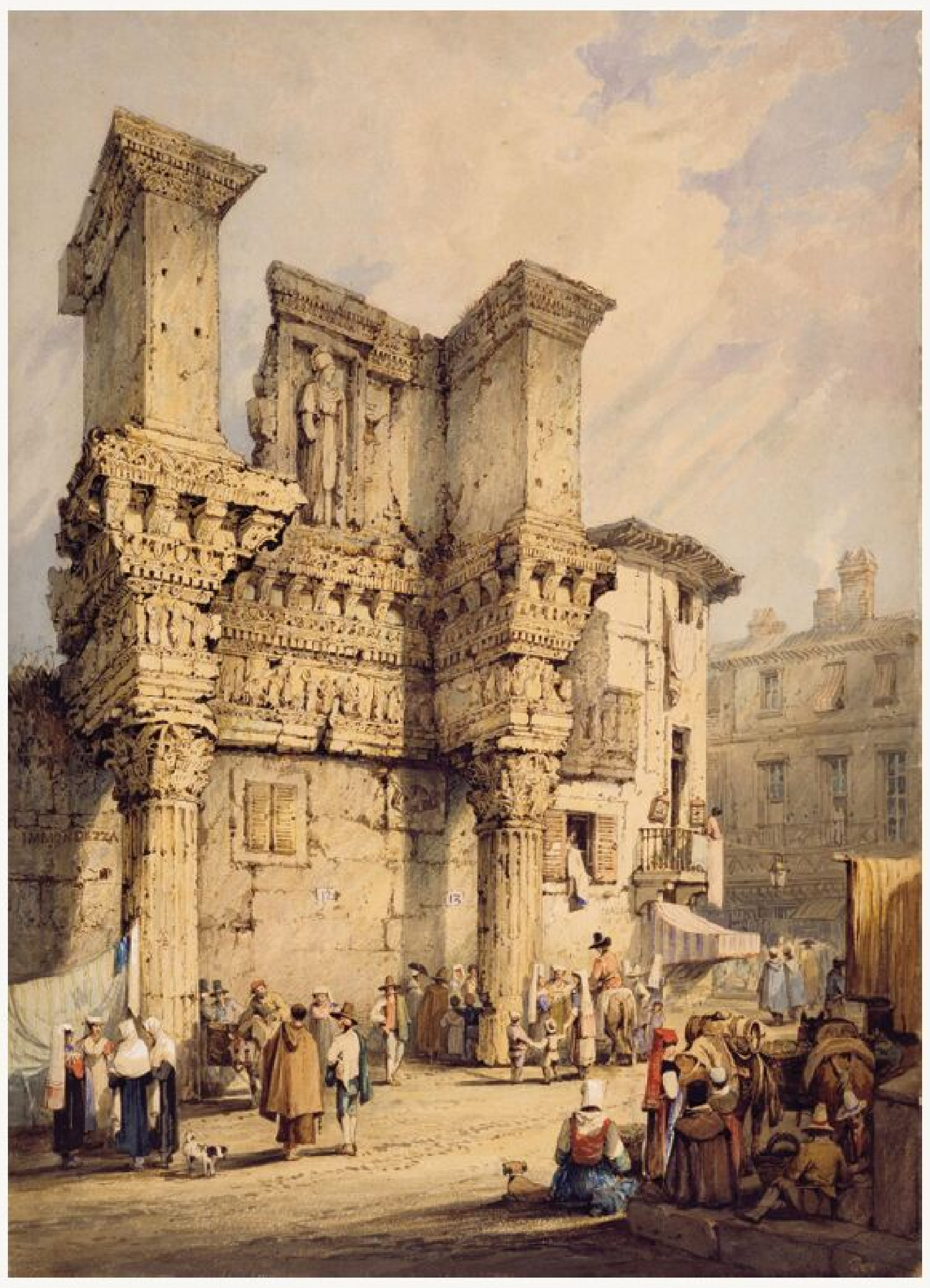
6

When the ball is dry, carve your design using a modelling tool or lolly stick. This can get a bit messy so protect the surface that you are working on. The carving may be hard work sometimes, but imagine carving real stone. Your petrosphere is complete.

Time Required: 1 hour (plus time for the paper mache and clay to dry)

Dr Chloë Duckworth, reader in Archaeological Science & Public Engagement, Newcastle University, revisits world-building games from her past and asks:

"Can we trust our concepts of progress?"



Top: Temple Of Pallas, Rome, 1783-1852 by Samuel Prout

BIRMINGHAM MUSEUMS TRUST/UNSPLASH

I am writing a book.

Well, I say that. To be perfectly honest, I am currently in the process of finding as many ways as possible to avoid writing a book. You may assume this is hyperbole, but in the past four months I have purchased a motorbike, started to learn Japanese, and sorted all my spare nails, screws, and Allen keys into different sizes and types.

"Is it the dreaded writer's block?", I wonder aloud to my cat as we sit on the kitchen floor surrounded by my toolbox miscellanea, "and more importantly, should I sub-categorise the flat-head Phillips by thread angle and shank length, or not?"

"Who cares?", he meows back at me, lazily pawing at a stray nail. "I'm hungry, and you haven't fed me in at least 20 minutes."

I conclude that cats make terrible sounding boards, and that thread angle categorisation is too much. I consider doing some writing and the idea causes me, like an off-brand Lord Sauron, to turn the Great Eye of Procrastination this way and that, until it settles on the next scheme.

The next scheme, it so happens, is to revisit computer games I enjoyed playing in the past. I settle on *Age of Empires* (originally released in 1997), and its sequel, *The Age of Kings* (1999). Both games see the players pitched as a sort of interventionist god, who controls the development of a nascent civilisation through different ages (depending on which version of the game you play, this might be Stone Age, Bronze Age, Feudal Age, and so on), as well as competing with enemy civilisations.

The idea of progress through these time periods had been featured in other games, most notably Sid Meier's *Civilization* from 1991, and its subsequent iterations, and has continued into the era of mobile apps, such as the imaginatively titled *'Forge' of Empires*.

I remember buying *Age of Empires* as a student in the early 2000s, and waiting for 30 minutes or more while it was installed onto my PC. I appreciate today's power of almost instantaneous online purchase and download, but confess that I miss the hardware: the original game came on CD-ROM, and its case included a glossy, fold-out technology tree, showing how each development and stage of civilisation was contingent upon another.

I wrote my undergraduate dissertation on the Late Bronze Age Mediterranean, and used to take great nerdy delight in the game's detailed, relatively accurate depictions of Hittites, Egyptians, Minoans, Phoenicians, and the rest.

As I work to lead my small society of crude stone huts to a glorious, technologically sophisticated empire, I can't help but think about the power of this idea; the idea that human groups the world over naturally progress from one set stage to the next, each based upon a prevailing technology for tools and weapons, from stone to bronze and iron, until they enter the age of history, thanks to the technology of writing.

Human civilisation as a progression through various set stages is an old idea, but was most notably pioneered by a nineteenth century Danish archaeologist named Christian Jürgensen Thomsen, who used it to help categorise and date archaeological finds.

It worked for Denmark, and broadly worked for much of the rest of Europe. Admittedly, cracks started to appear with the continent-wide approach, as archaeological dating amassed more evidence that change over larger areas did not always work in a logical, stepwise fashion. The system becomes absurd when applied to all of humanity around the globe (what does a term like 'Iron Age' even mean when it begins in 900 BC in one location, and 1830 in another?), but that hasn't stopped people from trying.

What started out as a broad description intended to help archaeologists trace change over time in a particular area of the world has become so embedded in the general consciousness as to seem a fundamental part of reality. What was developed to work in northwest Europe has become synonymous with progress everywhere, and in some extremes has been used to justify claims of cultural superiority.

I wonder how much computer games have spread and cemented such ideas? They are vastly influential across language and cultural barriers, and a large number of them are set in the past. An archaeology degree and an interest in gaming could land you the enviable job of advising game developers on historical accuracy in a franchise such as *Assassin's Creed*, which boasts, "history is our playground".

Indeed, there is now a whole subdiscipline of academia devoted to the phenomenon, which (given the pace of change in the university environment) only tells you that it is no longer anything new. People who grew up playing *Civilization* and *Age of Empires* are now voters, politicians, CEOs: games do not have to make it under the skin of internet 'influencers' to become influential.

I shake my head and blink. The room is dark and the computer screen too bright. I must have been playing for hours, but all that downtime has given me ideas. I have things I want to say, to write, about how technology has been wrongly linked to social progress, and how archaeological categorisations such as 'Stone Age' have spilled out of their original spaces, often with problematic consequences.

I sigh, shut down the game, and open a Word document. There are things I need to write. 🟩

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